

APPENDIX A. FISH AND BLUE CRAB COMPOSITING MEMORANDA



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MEMORANDUM

To: Robert Law, de maximis, inc.
From: Shannon Katka, Mike Johns, Windward Environmental LLC
Subject: Revised Sample Analysis Plan for Blue Crab Tissue for the Lower Passaic River Restoration Project
Date: February 8, 2010

This memorandum summarizes compositing considerations and proposes a revised plan for analyzing blue crab tissues collected during summer 2009 in the Lower Passaic River Study Area (LPRSA) in support of a human health risk assessment (HHRA) and an ecological risk assessment (ERA). The proposed sample analysis plan and recommendations are based on the agreements reached between the US Environmental Protection Agency (USEPA) and the Cooperating Parties Group (CPG) and outlined in the *Quality Assurance Project Plan for the Fish and Decapod Crustacean Tissue Collection for Chemical Analysis and Fish Community Survey* (Windward 2009a), hereafter referred to as the Fish/Decapod QAPP, and per the discussions between CPG and USEPA at the January 20, 2010 fish/decapod tissue sampling meeting.

The following revisions were made to the November 6, 2009 crab analysis proposal (Windward 2009b) per the January 20, 2010 meeting:

- ◆ The maximum number of crab in composite samples not used for hepatopancreas-only tissue analysis¹ was reduced to 11. The number of crabs was reduced in the following samples: Comp01, Comp02, Comp03, Comp04, Comp15, Comp19, Comp20, and Comp23.
- ◆ Per USEPA January 12, 2010 comments (Windward 2009b), the following composites were modified to include/exclude crabs as requested by USEPA: Comp26, Comp36, Comp46, and Comp53.
- ◆ Samples that will be used for QC analysis have been identified in Appendix summary table (Table A1)

¹ More than 11 blue crab are needed to meet minimum mass requirements for hepatopancreas-only samples.

- ◆ The relationship of the largest and smallest crab lengths to the average length within a composite has been added to the Appendix summary table (Table A1)

USEPA agreed during the January 20, 2010, meeting that: 1) no additional sampling is needed for blue crab at this time, and 2) blue crab will be used as the decapod target species in the freshwater section in place of crayfish. The chemistry results of the blue crab collected in summer 2009 will be evaluated to determine whether additional sampling is necessary to meet the data needs of the baseline risk assessments. CPG will review the literature to verify that there are no significant differences in the uptake for chemicals into the hepatopancreas in estuarine or freshwater conditions.

1 OVERALL ANALYSIS PLAN

The Fish/Decapod QAPP (Windward 2009a) defined the estuarine zone as the part of the LPRSA between river mile (RM) 0 and RM 10 and the freshwater zone as the part of the LPRSA area above RM 10 (from RM 10 to RM 17.4). Five 2-mile reaches were defined in the estuarine zone; two 2-mile reaches and one 3.4-mile reach was defined in the freshwater zone (Table 1).

Table 1. Summary of reach designations per zone

Zone	Reach	RM
Estuarine zone (RM 0 to RM 10)	1	RM 0 – RM 2
	2	RM 2 – RM 4
	3	RM 4 – RM 6
	4	RM 6 – RM 8
	5	RM 8 – RM 10
Freshwater zone (RM 10 to RM 17.4)	6	RM 10 – RM 12
	7	RM 12 – RM 14
	8	RM 14 – RM 17.4

Blue crab were identified as the selected estuarine receptor per the Fish/Decapod QAPP (Windward 2009a). Blue crab collected from the freshwater zone were also retained for analysis per the Fish/Decapod QAPP.

Crayfish were selected as the freshwater decapod receptor; however, very few crayfish were collected during the summer 2009 sampling effort. A total of 7 crayfish were collected between RM 12 and RM 17.4, with a total mass of 32 g. Therefore no analysis is recommended for this organism. Rather, since blue crab was also a primary target for collection and analysis as proposed in the Fish/Decapod QAPP (Windward 2009a), and blue crab were caught in the freshwater zone, blue crab is recommended for analysis in lieu of the crayfish as the representative epibenthic omnivore in the estuarine zone, which is consistent with discussion between USEPA and CPG at the January 20, 2010 meeting.

The compositing criteria were outlined in the Fish/Decapod QAPP (Windward 2009a) and the following is a summary of compositing criteria in order of priority for decapods:

1. Composite by species.
2. Require a target tissue mass of 150 g (pre-homogenization) for analysis of all analyte groups. The mass of blue crab tissue types was estimated based on regressions developed from previous data.
3. Include a minimum of three specimens per composite sample (the maximum number of specimens per composite is variable).
4. Composite specimens of similar size based on length.²
5. Consider the following in concert:
 - ◆ Composite by location when possible
 - ◆ Composite specimens that meet minimum target length
 - ◆ Composite an equal number of males and females when possible (only relevant to crab)

All compositing criteria were considered on a species-specific basis. Exceptions to the criteria include the following:

- ◆ Three blue crab carcass samples and one blue crab hepatopancreas-only sample have an estimated mass that is slightly less than the targeted 150 g (mass ranges from 130 g to 149 g). Because of estimated masses may be different than actual masses measured in the laboratory during the compositing preparation, the analytical list of any sample that is found to have actual mass less than the target mass of 150 g will be discussed between USEPA and CPG prior to any analysis of that sample.
- ◆ Some of the proposed composites cannot be composited by location:
 - ◆ Some proposed blue crab composite samples will have to be composited across multiple sampling locations (within 0.5 mile)
 - ◆ One crab hepatopancreas-only sample will have to be composited across multiple 2-mile reaches
- ◆ One proposed crab composite is composed of specimens with a maximum body length that is just outside of the target of 25% of the mean length (all specimens are within 27% of the mean length).

The proposed sample analysis plan is presented in Table 2. The number of samples proposed in the Fish/Decapod QAPP (Windward 2009a) is presented in Column 4,

² In a call on September 9, 2009, USEPA and CPG agreed that fish and decapods are of similar size when the lengths of all specimens in a composite are within 25% of the mean length for that composite.

Target No. of Samples, and the number of samples proposed based on the actual catch is presented in Column 5, Proposed No. of Samples.

Table 2. Summary of proposed tissue samples

Feeding Guild	Target or Alternative Species	Type of Sample	Target No. of Samples	Proposed No. of Samples	Proposed Sample Type
Epibenthic omnivore	blue crab	muscle/hepatopancreas	41	41	composite
		carcass	24	24	composite
		muscle-only	21	21	composite
		hepatopancreas-only	7	7	composite
	crayfish	whole body	27	0	none ^a

^a No data are proposed; this feeding guild is represented by blue crab, which were caught in both the estuarine and freshwater zones.

Figure 1 presents the locations of the blue crab composite samples proposed for analysis. Table A1 in Attachment A summarizes the proposed crab samples for analysis (and tissue type) and sampling locations based on assigned sample IDs. Attachment A also presents the details, including sample IDs, of all individual crab identified for chemistry analysis (Table A2) and specimen sampling locations (Table A3).

As specified in the Fish/Decapod QAPP (Windward 2009a), in order to conduct matrix-specific quality control (QC), 1 in every 20 samples per matrix type requires a mass of 450 g (this includes both mass for the matrix QC and the analytical sample). The proposed sample analysis plan is expected to provide sufficient mass to meet the matrix QC requirement based on the estimated mass per sample. In addition to QC samples, additional tissue mass is needed to satisfy USEPA split sample requests. Table A1 provides the estimated sample mass for all composites and tissue types and the selected samples for QC requirements, which can be used by USEPA to determine possible candidate samples for splits under this proposed sampling design. The selection of USEPA split samples should follow the selection of QC samples to ensure that sufficient mass is available for matrix QC as specified in the Fish/Decapod QAPP (Windward 2009a). It should be noted that because the estimated mass for hepatopancreas-only samples is based on previously collected data and no single composite sample can provide sufficient mass for QC, it is not known whether sufficient mass is available for QC analysis for this tissue type and will not be known until samples are actually homogenized and sample mass is measured.

It should also be noted that all specimens collected and retained during the 2009 sampling effort that are not proposed for analysis at this time will be retained for possible future analysis up to the specified holding time for tissue samples (1 year) per the Fish/Decapod QAPP (Windward 2009a). At the anniversary date of collection, the CPG will notify USEPA of its intent to discard any remaining samples.

2 EPIBENTHIC OMNIVORE: BLUE CRAB DETAILED ANALYSIS PLAN

Target Species/Tissue Type

- ◆ Estuarine and freshwater zone: blue crab (target number of samples per tissue type is presented in Table 3)
- ◆ Determine weights of each tissue type based on blue crab regressions developed from previously collected crab (Tierra Solutions 2002):
 - ◆ All soft tissue body weight (g) = $1.95 \times \text{body length} - 188.76$ ($r^2 = 0.63$)
 - ◆ Muscle weight (g) = $1.36 \times \text{body length} - 143.51$ ($r^2 = 0.51$)
 - ◆ Hepatopancreas weight (g) = $0.092 \times \text{body length} - 5.23$ ($r^2 = 0.04$)
 - ◆ Muscle/hepatopancreas weight (g) = muscle weight + hepatopancreas weight
 - ◆ Carcass weight = soft tissue body weight - (muscle weight + hepatopancreas weight)
- ◆ Estimated tissue mass is used to determine composites; however, actual mass measured following homogenization of samples may differ from estimated tissue mass.
- ◆ Target length: 4.5 in. (114 mm)

Catch Summary

- ◆ Crabs were caught in every reach throughout the LPRSA, with the largest number of acceptable crabs caught in Reaches 1 and 2 (RM 0 to RM 4) and fewer caught in Reaches 4 through 8 (RM 6 to RM 17.4).
- ◆ Of 892 crabs collected, 524 are acceptable for compositing. The remaining 368 are unacceptable for reasons noted in Table 3. However, crabs that are missing one or both claws are used to create four of the seven hepatopancreas-only samples.

Table 3. Rationale for the exclusion of crabs from composite samples

Reason for Exclusion	No. of Crabs Excluded
Crabs less than 4.5 in. (114 mm) in total length	201
Soft-shell crabs	12
Crabs missing one claw	121 ^{a, b}
Crabs missing both claws	17 ^{b, c}
Crabs with noted damage to claws, carapace, or abdominal apron	14 ^d
Crabs with incomplete claws (e.g., in process of regenerating claw)	3
Total	368

^a Includes eight soft-shell crab.

^b Some crabs missing one or both claws were used to create four of the hepatopancreas-only samples.

^c Includes three soft shell crab.

^d Includes one soft shell crab.

Analysis Options

The compositing plan proposed for blue crab (Table 4) meets the target number of tissue samples for all tissue types. All composites are made up of crabs collected from the same location or nearby locations (when insufficient tissue was available from one location), except for four of the hepatopancreas-only samples. Three of the hepatopancreas-only samples are made up of crabs collected within a single reach, and one of these samples is made up of crabs collected across multiple reaches (Reaches 6 through 8) in the freshwater zone.

Table 4. Proposed compositing plan for blue crabs

RM	Reach	No. of Crab Composite Samples			
		Muscle/HP	Carcass	Muscle-Only	HP-Only
Estuarine Zone					
RM 0 – RM 2	1	8	8	5	2
RM 2 – RM 4	2	6	6	4	2
RM 4 – RM 6	3	4	4	2	1
RM 6 – RM 8	4	4	4 ^{a,b}	0	0
RM 8 – RM 10	5	2	2	1	0
Total RM 0 – RM 10	1 – 5	24	24	12	5
Freshwater Zone					
RM 10 – RM 12	6	5	0	3	2 ^c
RM 12 – RM 14	7	6	0	3	
RM 14 – RM 17.4	8	6	0	3	
Total RM 10 – RM 17.4	6 – 8	17	0	9	2

^a Includes three samples that do not have minimum mass requirements (150 g). Estimated sample mass ranges from 130 to 135 g.

^b Includes one sample in which the maximum crab length in the composite is not within 25% of the mean length of crabs within the composite (note that all crab are within 27% of the mean length).

^c One hepatopancreas-only sample is based on crabs from Reaches 6 and 7, and one hepatopancreas-only sample is based on crabs from Reach 8. The hepatopancreas-only sample from Reaches 6 and 7 does not meet minimum mass requirements (150 g); estimated sample mass is 145 g.

HP – hepatopancreas

RM – river mile

Several issues were addressed to develop the blue crab compositing plan, including:

- ◆ Based on a comparison of the estimated total [carapace and soft tissue] mass and the actual total mass measured in the field laboratory, the regression from the 2002 Tierra fish community dataset (Tierra Solutions 2002) generally underpredicts total mass. These regressions may also underpredict individual tissue-type mass and, therefore are conservative estimates of mass. The

alternative is to use percent by mass to determine tissue-type weights; however, the Fish/Decapod QAPP (Windward 2009a) calls for use of the Tierra regressions.

- ◆ The distribution of crabs collected was variable, with more in the estuarine zone than in the freshwater zone, and the largest number in the lowest portion of the estuarine zone. To maximize the number of samples available for analysis, replicate samples were created when sufficient mass was available. At locations where the minimum mass was not met, crabs were combined with those from other locations (within 0.5 mile) to make samples of sufficient mass.
- ◆ Insufficient tissue was available to create all hepatopancreas-only samples on a reach-specific basis in the freshwater zone; one of the hepatopancreas-only samples is made up of crabs from Reaches 6 and 7. All other hepatopancreas-only samples are reach-specific composites (and location-specific composites, when possible).
- ◆ The number of males collected far exceeded the number of females (ratio is 458:66 of the crabs acceptable for compositing). Therefore, female crabs were distributed among composites when possible (most estuarine composites have zero to three females [one sample has four females]; all freshwater samples have zero or one female).
- ◆ Crabs are of similar size for each composite (i.e., within 25% of the mean size for that composite). One proposed crab composite sample (Comp33) contains a crab that is not within 25% of the mean length of the other crabs in the composite sample, although all crab are within 27% of the mean length in this sample.

Estuarine composite samples have 4 to 11 crabs in each composite for all tissue types, except for three muscle-only and four hepatopancreas-only samples, which are made up of 19 to 21 crabs each (Table 5). This number of crabs is required to meet the analytical mass requirements for hepatopancreas-only samples.

Table 5. Proposed compositing plan for blue crab in the estuarine zone

Location ^a	No. of Samples				No. of Crabs in Composite Sample
	Muscle/HP	Carcass	Muscle-Only	HP-Only	
Reach 1	8	8	5	2	6 – 11 (21^b)
LPR1I	2	2	0	0	11
LPR1J	2	2	1	1	11 (21 ^b)
LPR1K	2	2	2	1	11 (21 ^b)
LPR1L	0	0	1	0	9
LPR1M	1	1	1	0	8
LPR1N	1	1	0	0	6

Table 5. Proposed compositing plan for blue crab in the estuarine zone

Location ^a	No. of Samples				No. of Crabs in Composite Sample
	Muscle/HP	Carcass	Muscle-Only	HP-Only	
Reach 2	6	6	4	2	9 – 11 (19^b – 21^b)
LPR2B/L	1	1	0	0	10
LPR2I	1	1	1	0	9 – 11
LPR2J	2	2	0	0	9 – 10
LPR2K	2	2	1	1	11 (21 ^b)
LPR2M	0	0	1	0	11
LPR2N	0	0	1	0	11
LPR2J/K/L	0	0	0	1	19 ^b
Reach 3	4	4	2	1	8 – 11 (21^b)
LPR3M	1	1	1	0	8
LPR3GH//N	1	1	0	0	11
LPR3O	2	2	1	0	8 – 10
LPR3F/H/M/N/O	0	0	0	1	21 ^b
Reach 4	4	4	0	0	4 – 6
LPR4O/F	1	1 ^c	0	0	5
LPR4G	1	1 ^c	0	0	4
LPR4H/L	1	1	0	0	6
LPR4P	1	1 ^{c, d}	0	0	5
Reach 5	2	2	1	0	6 – 7
LPR5E/M	1	1	0	0	7
LPR5J/O	1	1	1	0	6 – 7
Estuarine Total	24	24	12	5	4 – 11 (19^b – 21^b)

^a All blue crab sampling locations are presented in Table A3 of Attachment A. Table A1 of Attachment A presents a summary that links sampling locations with proposed composite samples.

^b Sample size based on composite samples where HP-only tissue will be analyzed.

^c Sample does not meet minimum mass requirements (150 g). Estimated sample mass ranges from 130 to 135 g.

^d Maximum crab length in the composite sample is not within 25% of the mean length of crabs within the composite sample (note that all crab are within 27% of the mean length).

HP – hepatopancreas

A summary of the crab catch and proposed composites in each estuarine reach is presented below.

Reach 1

- ◆ Acceptable numbers of crabs were collected from six sampling locations; three sampling locations have replicate samples ($n = 2$) for muscle/hepatopancreas, carcass, and/or muscle-only composites.

Reach 2

- ◆ Acceptable numbers of crabs were collected from seven sampling locations; two locations have replicate samples ($n = 2$) for muscle/hepatopancreas and carcass composites.
- ◆ One composite sample is composed of a combination of crabs from locations LPR2B and LPR2L, which are adjacent to each other.
- ◆ One hepatopancreas-only sample was created using crabs missing one or both claws from three sampling locations in this reach.

Reach 3

- ◆ Acceptable numbers of crabs were collected from five sampling locations; one location had replicate samples ($n = 2$) for muscle/hepatopancreas and carcass.
- ◆ One composite sample is composed of a combination of crabs from locations LPR3G, LPR3H, and LPR3N, which were collected within approximately 0.5 miles of each other.
- ◆ One hepatopancreas-only sample was created using crabs missing one or both claws from five sampling locations in this reach.

Reach 4

- ◆ Acceptable numbers of crabs were collected from six sampling locations; no sampling locations had replicates.
- ◆ Three of four proposed carcass composite samples do not meet minimum mass requirements (150 g); mass in these samples ranges from 130 to 135 g.
- ◆ One composite is composed of a combination of crabs from LPR4H and LPR4L, which were collected approximately 0.1 mile apart; the two locations appear to be located on the same mudflat.
- ◆ One composite is composed of a combination of crabs from LPR4F and LPR4O, which were collected approximately 0.1 mile apart.

Reach 5

- ◆ Acceptable numbers of crabs were collected from four sampling locations; no sampling locations had replicates.

- ◆ One composite is composed of a combination of crabs from LPR5E and LPR5M, which were collected approximately 0.3 mile apart.
- ◆ One composite is composed of a combination of crabs from LPR5O and LPR5J, which were collected approximately 0.1 mile apart.

Composites of three to five crabs each are proposed for the freshwater zone for muscle/hepatopancreas and muscle-only tissues (Table 6). Hepatopancreas-only composite samples were composed of 19 to 20 crabs. The Fish/Decapod QAPP (Windward 2009a) did not propose the analysis of carcass samples from the freshwater zone, and none is proposed here. Crabs from the freshwater zone could be evaluated in the ERA using muscle/hepatopancreas samples and predicting whole-body soft-tissue concentrations based on estuarine data (e.g., use the ratio of the average percent contribution of chemical of potential concern (COPC) concentrations of the muscle/hepatopancreas samples to the whole-body concentration based on estuarine data and apply to freshwater muscle/hepatopancreas samples).

Table 6. Proposed compositing plan for blue crabs in the freshwater zone

Location ^a	No. of Samples				No. of Crabs per Composite Sample
	Muscle/HP	Carcass	Muscle-Only	HP-Only	
Reach 6	5	0	3	0	3 – 5
LPR6F	2	0	2	0	3 – 4
LPR6G	2	0	1	0	4
LPR6H/M	1	0	0	0	5
Reach 6/7					
LPR6F/G/N, LPR7F/G/H/L/M/O	0	0	0	1	19 ^{b, c}
Reach 7	6	0	3	0	3 – 5
LPR7F	2	0	1	0	4
LPR7G	3	0	2	0	3 – 4
LPR7H	1	0	0	0	5
Reach 8	6	0	3	0	3 – 5 (20^c)
LPR8J/V	2	0	0	0	4
LPR8R	1	0	0	0	4
LPR8K	2	0	2	0	3 – 4
LPR8S	1	0	1	0	4 – 5
LPR8J/K/M/R/S/V/W/Y	0	0	0	1	20 ^c
Freshwater Total	17	0	9	2	3 – 5 (19^c – 20^c)

^a All blue crab sampling locations are presented in Table A3 of Attachment A. Table A1 of Attachment A presents a summary that links sampling locations with proposed composite samples.

^b Sample does not meet minimum mass requirements (150 g). Estimated sample mass is 145 g.

^c Sample size based on composite samples where HP-only tissue will be analyzed.

HP – hepatopancreas

A summary of crab catch and proposed composites in each freshwater reach is presented below.

Reach 6

- ◆ Acceptable numbers of crabs were collected from four sampling locations; two locations had replicate samples ($n = 2$) for muscle/hepatopancreas and/or muscle-only.
- ◆ One composite is composed of a combination of crabs from LPR6H and LPR6M, which were collected approximately 0.4 mile apart.
- ◆ Insufficient mass of crabs is available for analysis from one location: LPR6N (only three crabs of limited mass); no analysis of samples from this location is proposed, nor is it recommended that these specimens be combined with specimens from other locations.
- ◆ One hepatopancreas-only sample was created using crabs missing one or both claws from three sampling locations in Reach 6 and six sampling locations in Reach 7. This sample does not meet minimum mass requirements (150 g); hepatopancreas-only mass in this sample is 145 g.

Reach 7

- ◆ Acceptable numbers of crabs were collected from three sampling locations; two locations had replicate samples ($n = 2$ to 3) for muscle/hepatopancreas and/or muscle-only.
- ◆ Insufficient mass of crabs is available for analysis from two locations: LPR7M (only one crab) and LPR7O (only one crab); no analysis of samples from these locations is proposed, nor is it recommended that these specimens be combined with specimens from other locations.

Reach 8

- ◆ Acceptable numbers of crabs were collected from five sampling locations; two locations had replicate samples ($n = 2$) for muscle/hepatopancreas and/or muscle-only.
- ◆ One composite is composed of a combination of crabs from LPR8J and LPR8V, which were collected approximately 0.3 mile apart but on different sides of the river.
- ◆ One hepatopancreas-only sample was created using crabs missing one or both claws from eight sampling locations in this reach.

Windward will work with the analytical laboratories to begin sample processing within 14 working days of USEPA's approval of this revised memorandum for blue crab and

routinely communicate with the CPG and USEPA during the processing of the blue crab tissue.

3 REFERENCES

- Tierra Solutions. 2002. Passaic River Study Area fish community data. September 18, 2002. Tierra Solutions, Inc., Newark, NJ.
- Windward. 2009a. Lower Passaic River Restoration Project. Quality Assurance Project Plan: Fish and decapod crustacean tissue collection for chemical analysis and fish community survey. Final. Prepared for Cooperating Parties Group, Newark, New Jersey. Windward Environmental LLC, Seattle, WA.
- Windward. 2009b. Memorandum dated November 6, 2009 to Robert Law, de maximis, inc.: Proposed sample analysis plan for fish/decapod tissue for the Lower Passaic River Restoration Project. Windward Environmental LLC, Seattle, WA.

Table A1. Summary of proposed blue crab composites

Table A1. Summary of proposed blue crab composites					Estimated Mass (g)						Length (mm)				
Reach	RM	Location	Composite ID (tissue type 1)	Composite ID (tissue type 2)	Muscle/ HP	Carcass	Muscle- only	HP-only	n	Male: Female	Average	Min	Max	% difference from ave	
														Min	Max
1	RM 0 - RM 2	LPR1I	LPR1-CSMH-Comp01	LPR1-CSCT-Comp01	588	323			11	9:2	139	118	150	15%	8%
1	RM 0 - RM 2	LPR1I	LPR1-CSMH-Comp02	LPR1-CSCT-Comp02	564	314			11	9:2	138	116	157	16%	14%
1	RM 0 - RM 2	LPR1J	LPR1-CSMH-Comp03	LPR1-CSCT-Comp03	658	347			11	10:1	144	115	164	20%	14%
1	RM 0 - RM 2	LPR1J	LPR1-CSMH-Comp04	LPR1-CSCT-Comp04	607	329			11	10:1	140	125	161	11%	15%
1	RM 0 - RM 2	LPR1J	LPR1-CSMT-Comp05	LPR1-CSHT-Comp05			1106	169	21	20:1	144	115	170	20%	18%
1	RM 0 - RM 2	LPR1K	LPR1-CSMH-Comp06	LPR1-CSCT-Comp06	508	295			11	9:2	134	115	157	14%	17%
1	RM 0 - RM 2	LPR1K	LPR1-CSMH-Comp07	LPR1-CSCT-Comp07	715	366			11	10:1	147	119	169	19%	15%
1	RM 0 - RM 2	LPR1K	LPR1-CSMT-Comp08				487		11	10:1	138	115	162	17%	17%
1	RM 0 - RM 2	LPR1K	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09			1070	166	21	19:2	143	115	174	20%	22%
1	RM 0 - RM 2	LPR1L	LPR1-CSMT-Comp10				553		9	8:1	151	114	170	24%	13%
1	RM 0 - RM 2	LPR1M	LPR1-CSMH-Comp11	LPR1-CSCT-Comp11	390	222			8	6:2	136	114	148	16%	9%
1	RM 0 - RM 2	LPR1M	LPR1-CSMT-Comp12				481		8	5:3	150	135	169	10%	13%
1	RM 0 - RM 2	LPR1N	LPR1-CSMH-Comp13	LPR1-CSCT-Comp13	348	185			6	6:0	142	129	157	9%	10%
2	RM 2 - RM 4	LPR2B/L	LPR2-CSMH-Comp14	LPR2-CSCT-Comp14	518	288			10	8:2	138	117	173	15%	25%
2	RM 2 - RM 4	LPR2I	LPR2-CSMH-Comp15	LPR2-CSCT-Comp15	472	283			11	7:3	132	116	160	12%	21%
2	RM 2 - RM 4	LPR2I	LPR2-CSMT-Comp16				474		9	6:3	144	133	159	8%	10%
2	RM 2 - RM 4	LPR2J	LPR2-CSMH-Comp17	LPR2-CSCT-Comp17	521	278			9	9:0	142	126	158	11%	11%
2	RM 2 - RM 4	LPR2J	LPR2-CSMH-Comp18	LPR2-CSCT-Comp18	452	265			10	10:0	134	115	151	14%	13%
2	RM 2 - RM 4	LPR2K	LPR2-CSMH-Comp19	LPR2-CSCT-Comp19	738	374			11	10:1	149	120	179	19%	20%
2	RM 2 - RM 4	LPR2K	LPR2-CSMH-Comp20	LPR2-CSCT-Comp20	703	362			11	10:1	146	123	156	16%	7%
2	RM 2 - RM 4	LPR2K	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21			982	160	21	19:2	140	115	164	18%	17%
2	RM 2 - RM 4	LPR2M	LPR2-CSMT-Comp22				448		11	7:4	135	118	156	13%	15%
2	RM 2 - RM 4	LPR2N	LPR2-CSMT-Comp23				442		11	9:2	135	119	148	12%	10%
2	RM 2 - RM 4	LPR2J/K/L	LPR2-CSHT-Comp63					152	19	19:0	144	120	177	17%	23%
3	RM 4 - RM 6	LPR3M	LPR3-CSMH-Comp24	LPR3-CSCT-Comp24	232	167			8	5:3	122	115	137	6%	12%
3	RM 4 - RM 6	LPR3M	LPR3-CSMT-Comp25				162		8	6:2	120	114	133	5%	10%
3	RM 4 - RM 6	LPR3G/H/?N	LPR3-CSMH-Comp26	LPR3-CSCT-Comp26	292	221			11	8:3	121	114	132	6%	9%
3	RM 4 - RM 6	LPR3O	LPR3-CSMH-Comp27	LPR3-CSCT-Comp27	518	288			10	8:2	138	116	168	16%	22%
3	RM 4 - RM 6	LPR3O	LPR3-CSMH-Comp28	LPR3-CSCT-Comp28	374	238			10	7:3	128	114	146	11%	14%
3	RM 4 - RM 6	LPR3O	LPR3-CSMT-Comp29				359		8	6:2	139	124	152	10%	10%
3	RM 4 - RM 6	LPR3F/H/M/N/O	LPR3-CSHT-Comp64					155	21	17:4	137	115	164	16%	20%
4	RM 6 - RM 8	LPR4O/F	LPR4-CSMH-Comp30	<i>LPR4-CSCT-Comp30</i>	226	<i>133</i>			5	3:2	134	118	151	12%	13%
4	RM 6 - RM 8	LPR4G	LPR4-CSMH-Comp31	<i>LPR4-CSCT-Comp31</i>	265	<i>135</i>			4	3:1	148	130	166	12%	12%
4	RM 6 - RM 8	LPR4H/L	LPR4-CSMH-Comp32	LPR4-CSCT-Comp32	276	161			6	5:1	134	115	148	14%	10%
4	RM 6 - RM 8	LPR4P	<i>LPR4-CSMH-Comp33</i>	<i>LPR4-CSCT-Comp33</i>	<i>220</i>	<i>131</i>			5	4:1	133	115	168	13%	27%
5	RM 8 - RM 10	LPR5E/M	LPR5-CSMH-Comp34	LPR5-CSCT-Comp34	235	158			7	5:2	126	120	140	4%	11%
5	RM 8 - RM 10	LPR5O	LPR5-CSMH-Comp35	LPR5-CSCT-Comp35	325	188			7	5:2	134	114	149	15%	11%
5	RM 8 - RM 10	LPR5J/O	LPR5-CSMT-Comp36				192		6	5:1	129	114	144	12%	12%
6	RM 10 - RM 12	LPR6F	LPR6-CSMH-Comp37		252				4	4:0	146	125	170	14%	17%
6	RM 10 - RM 12	LPR6F	LPR6-CSMH-Comp38		162				4	4:0	130	121	144	7%	11%
6	RM 10 - RM 12	LPR6F	LPR6-CSMT-Comp39				170		4	4:0	137	119	156	13%	14%
6	RM 10 - RM 12	LPR6F	LPR6-CSMT-Comp40				173		3	3:0	148	132	157	11%	6%
6	RM 10 - RM 12	LPR6G	LPR6-CSMH-Comp41		180				4	4:0	134	127	139	5%	4%
6	RM 10 - RM 12	LPR6G	LPR6-CSMH-Comp42		209				4	3:1	139	122	147	12%	6%
6	RM 10 - RM 12	LPR6G	LPR6-CSMT-Comp43				183		4	3:1	139	115	167	17%	20%
6	RM 10 - RM 12	LPR6H/M	LPR6-CSMH-Comp44		218				5	5:0	132	116	143	12%	8%
7	RM 12 - RM 14	LPR7F	LPR7-CSMH-Comp45		184				4	4:0	134	120	146	11%	9%
7	RM 12 - RM 14	LPR7F	LPR7-CSMH-Comp46		162				4	3:1	130	115	145	12%	11%
7	RM 12 - RM 14	LPR7F	LPR7-CSMT-Comp47				174		4	4:0	138	126	149	8%	8%
7	RM 12 - RM 14	LPR7G	LPR7-CSMH-Comp48		191				3	3:0	146	134	157	8%	7%
7	RM 12 - RM 14	LPR7G	LPR7-CSMH-Comp49		260				4	4:0	147	127	164	14%	11%
7	RM 12 - RM 14	LPR7G	LPR7-CSMH-Comp50		169				3	2:1	141	114	175	19%	24%
7	RM 12 - RM 14	LPR7G	LPR7-CSMT-Comp51				166		4	4:0	136	125	144	8%	6%

Table A1. Summary of proposed blue crab composites

Table A1. Summary of proposed blue crab composites					Estimated Mass (g)						Length (mm)				
Reach	RM	Location	Composite ID (tissue type 1)	Composite ID (tissue type 2)	Muscle/ HP	Carcass	Muscle- only	HP-only	n	Male: Female	Average	Min	Max	% difference from ave	
														Min	Max
7	RM 12 - RM 14	LPR7G	LPR7-CSMT-Comp52				260		4	4:0	153	142	165	7%	8%
7	RM 12 - RM 14	LPR7H	LPR7-CSMH-Comp53		271				5	5:0	140	115	168	18%	20%
7, 8	multiple reaches	LPR6F/G/N, LPR7F/G/H/L/M/O	<i>LPRX-CSHT-Comp65</i>					145	19	17:2	140	120	161	14%	15%
8	RM 14 - RM 17.4	LPR8J/V	LPR8-CSMH-Comp54		167				4	4:0	131	122	135	7%	3%
8	RM 14 - RM 17.4	LPR8J/V	LPR8-CSMH-Comp55		196				4	4:0	136	116	167	15%	23%
8	RM 14 - RM 17.4	LPR8R	LPR8-CSMH-Comp56		208				4	4:0	138	122	153	12%	11%
8	RM 14 - RM 17.4	LPR8K	LPR8-CSMH-Comp57		223				4	4:0	141	121	174	14%	24%
8	RM 14 - RM 17.4	LPR8K	LPR8-CSMH-Comp58		162				4	4:0	130	123	140	6%	7%
8	RM 14 - RM 17.4	LPR8K	LPR8-CSMT-Comp59				157		3	3:0	144	142	145	1%	1%
8	RM 14 - RM 17.4	LPR8K	LPR8-CSMT-Comp60				161		3	3:0	145	134	161	8%	11%
8	RM 14 - RM 17.4	LPR8S	LPR8-CSMH-Comp61		309				5	5:0	145	133	159	8%	10%
8	RM 14 - RM 17.4	LPR8S	LPR8-CSMT-Comp62				178		4	4:0	138	116	150	16%	8%
8	RM 14 - RM 17.4	LPR8J/K/M/R/S/V/W/Y	LPR8-CSHT-Comp66					152	20	20:0	139	114	165	18%	18%
Total number of samples					41	24	21	7							

Notes:

Bold samples are samples with estimated mass of < 150 g; reduced analyte list may be necessaryUnderlined samples are samples where maximum crab length is not within 25% of the mean

Shaded cells indicate the samples that will be used for QC analysis; all hepatopancreas-only samples are shaded because the estimated mass for hepatopancreas-only samples is based on previously collected data and no single composite sample can provide sufficient mass for QC, it is not known whether sufficient mass is available for QC analysis for this tissue type and will not be known until samples are actually homogenized and sample mass is measured.

Table A2. Proposed composite samples for blue crab

Reach	Location ID	Trap ID	Trap Attempt ID	Specimen ID	Weight (g)	Length (mm)	Gender	Collection Method	Comments	Reason for exclusion from composite?	Estimated WB weight	Estimated soft tissue WB weight	Estimated Muscle/HP weight	Estimated Carcass weight	Estimated Muscle-only weight	Estimated HP-only weight	Composite ID (tissue type 1)	Composite ID (tissue type 2)	Composite Notes
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS315	228	148	male	Gillnet			165.9	99.8	66.2	33.7	57.8	8.4	LPRI1-CSMH-Comp01	LPRI1-CSCT-Comp01	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS316	200	138	male	Gillnet			141.3	80.3	51.6	28.7	44.2	7.5	LPRI1-CSMH-Comp01	LPRI1-CSCT-Comp01	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS318	222	144	male	Gillnet			155.8	92.0	60.3	31.7	52.3	8.0	LPRI1-CSMH-Comp01	LPRI1-CSCT-Comp01	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS319	246	150	male	Gillnet			171.1	103.7	69.1	34.7	60.5	8.6	LPRI1-CSMH-Comp01	LPRI1-CSCT-Comp01	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS320	216	148	male	Gillnet			165.9	99.8	66.2	33.7	57.8	8.4	LPRI1-CSMH-Comp01	LPRI1-CSCT-Comp01	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS321	106	118	male	Gillnet			98.5	41.3	22.6	18.7	17.0	5.6	LPRI1-CSMH-Comp01	LPRI1-CSCT-Comp01	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS323	188	136	male	Gillnet			136.6	76.4	48.7	27.7	41.5	7.3	LPRI1-CSMH-Comp01	LPRI1-CSCT-Comp01	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS324	212	156	male	Gillnet	Left claw included		187.3	115.4	77.8	37.7	68.7	9.1			
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS325	170	131	male	Gillnet	Missing right leg		125.3	66.7	41.5	25.2	34.7	6.8	LPRI1-CSMH-Comp01	LPRI1-CSCT-Comp01	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS326	180	131	male	Gillnet			125.3	66.7	41.5	25.2	34.7	6.8	LPRI1-CSMH-Comp01	LPRI1-CSCT-Comp01	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS327	196	139	male	Gillnet			143.6	82.3	53.1	29.2	45.5	7.6			
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS330	118	115	male	Gillnet	Missing right leg and right claw, included		92.8	35.5	18.2	17.3	12.9	5.4			
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS409	202	157	male	Gillnet	Missing right leg		190.1	117.4	79.2	38.2	70.0	9.2	LPRI1-CSMH-Comp02	LPRI1-CSCT-Comp02	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS410	186	143	male	Gillnet			153.3	90.1	58.9	31.2	51.0	7.9	LPRI1-CSMH-Comp02	LPRI1-CSCT-Comp02	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS411	182	141	male	Gillnet			148.4	86.2	56.0	30.2	48.3	7.7	LPRI1-CSMH-Comp02	LPRI1-CSCT-Comp02	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS412	136	144	female	Gillnet			155.8	92.0	60.3	31.7	52.3	8.0	LPRI1-CSMH-Comp01	LPRI1-CSCT-Comp01	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS413	218	133	male	Gillnet	Right spine damaged		129.7	70.6	44.4	26.2	37.4	7.0	LPRI1-CSMH-Comp02	LPRI1-CSCT-Comp02	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS414	156	138	female	Gillnet	Right spine and leg damaged		141.3	80.3	51.6	28.7	44.2	7.5	LPRI1-CSMH-Comp02	LPRI1-CSCT-Comp02	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS418	182	134	male	Gillnet			132.0	72.5	45.8	26.7	38.7	7.1	LPRI1-CSMH-Comp02	LPRI1-CSCT-Comp02	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS419	172	134	male	Gillnet	Missing left leg		132.0	72.5	45.8	26.7	38.7	7.1	LPRI1-CSMH-Comp02	LPRI1-CSCT-Comp02	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS420	154	144	female	Gillnet	Broken left spine		155.8	92.0	60.3	31.7	52.3	8.0	LPRI1-CSMH-Comp01	LPRI1-CSCT-Comp01	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS421	142	132	male	Gillnet	Missing right leg		127.5	68.6	42.9	25.7	36.0	6.9	LPRI1-CSMH-Comp01	LPRI1-CSCT-Comp01	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS422	114	116	male	Gillnet			94.7	37.4	19.7	17.7	14.3	5.4	LPRI1-CSMH-Comp02	LPRI1-CSCT-Comp02	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS423	112	134	female	Gillnet			132.0	72.5	45.8	26.7	38.7	7.1	LPRI1-CSMH-Comp02	LPRI1-CSCT-Comp02	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS424	224	153	male	Gillnet	Missing left swimmerette and leg		179.1	109.6	73.4	36.2	64.6	8.8	LPRI1-CSMH-Comp02	LPRI1-CSCT-Comp02	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS425	214	161	male	Gillnet			201.4	125.2	85.0	40.2	75.5	9.6			
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS426	164	134	male	Gillnet			132.0	72.5	45.8	26.7	38.7	7.1			
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS427	222	148	male	Gillnet			165.9	99.8	66.2	33.7	57.8	8.4			
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS428	164	153	male	Gillnet			179.1	109.6	73.4	36.2	64.6	8.8			
LPRI	LPRI1	LPRI1-A	LPRI1-A3	LPRI1-CS564	176	136	male	Gillnet	Missing right leg; damage to right swimmerette		136.6	76.4	48.7	27.7	41.5	7.3			
LPRI	LPRI1	LPRI1-A	LPRI1-A3	LPRI1-CS565	182	130	male	Gillnet			123.1	64.7	40.0	24.7	33.3	6.7			
LPRI	LPRI1	LPRI1-A	LPRI1-A3	LPRI1-CS569	268	156	male	Gillnet	Missing left and right leg		187.3	115.4	77.8	37.7	68.7	9.1			
LPRI	LPRI1	LPRI1-A	LPRI1-A3	LPRI1-CS570	158	131	male	Gillnet	Missing right leg		125.3	66.7	41.5	25.2	34.7	6.8			
LPRI	LPRI1	LPRI1-A	LPRI1-A4	LPRI1-CS650	196	142	male	Gillnet			150.9	88.1	57.4	30.7	49.6	7.8			
LPRI	LPRI1	LPRI1-A	LPRI1-A4	LPRI1-CS651	204	149	male	Gillnet			168.5	101.8	67.6	34.2	59.1	8.5			
LPRI	LPRI1	LPRI1-A	LPRI1-A5	LPRI1-CS702	174	136	male	Gillnet			136.6	76.4	48.7	27.7	41.5	7.3			
LPRI	LPRI1	LPRI1-A	LPRI1-A5	LPRI1-CS703	196	141	male	Gillnet			148.4	86.2	56.0	30.2	48.3	7.7			
LPRI	LPRI1	LPRI1-A	LPRI1-A5	LPRI1-CS706	190	155	male	Gillnet			184.6	113.5	76.3	37.2	67.3	9.0			
LPRI	LPRI1	LPRI1-A	LPRI1-A5	LPRI1-CS707	212	141	male	Gillnet			148.4	86.2	56.0	30.2	48.3	7.7			
LPRI	LPRI1	LPRI1-A	LPRI1-A5	LPRI1-CS708	232	150	male	Gillnet	Missing left leg		171.1	103.7	69.1	34.7	60.5	8.6			
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS332	210	146	male	Gillnet	Missing right swimmerette		160.8	95.9	63.3	32.7	55.1	8.2	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS333	198	139	male	Gillnet			143.6	82.3	53.1	29.2	45.5	7.6	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS334	102	116	male	Gillnet			94.7	37.4	19.7	17.7	14.3	5.4	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS335	188	138	male	Gillnet			141.3	80.3	51.6	28.7	44.2	7.5	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS336	154	134	male	Gillnet	Missing left leg		132.0	72.5	45.8	26.7	38.7	7.1	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS338	270	157	male	Gillnet			190.1	117.4	79.2	38.2	70.0	9.2	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS339	206	143	male	Gillnet			153.3	90.1	58.9	31.2	51.0	7.9	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS340	192	147	male	Gillnet	Left swimmerette included		163.4	97.9	64.7	33.2	56.4	8.3	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS341	318	170	male	Gillnet			228.3	142.7	98.1	44.6	87.7	10.4	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS342	332	169	male	Gillnet	Right spine damaged		225.2	140.8	96.6	44.1	86.3	10.3	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS343	286	160	male	Gillnet	Left spine damaged		198.6	123.2	83.6	39.7	74.1	9.5	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A1	LPRI1-CS344	234	149	male	Gillnet	Missing right leg		168.5	101.8	67.6	34.2	59.1	8.5	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS440	224	144	male	Gillnet			155.8	92.0	60.3	31.7	52.3	8.0	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS441	260	156	male	Gillnet			187.3	115.4	77.8	37.7	68.7	9.1	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS443	160	125	male	Gillnet	Missing left leg		112.5	55.0	32.8	22.2	26.5	6.3	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS444	190	148	male	Gillnet	Missing right leg		165.9	99.8	66.2	33.7	57.8	8.4	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS445	184	149	male	Gillnet	Missing left leg		168.5	101.8	67.6	34.2	59.1	8.5	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS446	214	148	male	Gillnet			165.9	99.8	66.2	33.7	57.8	8.4	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS448	152	130	male	Gillnet			123.1	64.7	40.0	24.7	33.3	6.7	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS449	220	146	male	Gillnet			160.8	95.9	63.3	32.7	55.1	8.2	LPRI1-CSMT-Comp05	LPRI1-CSHT-Comp05	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS450	202	142	male	Gillnet			150.9	88.1	57.4	30.7	49.6	7.8	LPRI1-CSMH-Comp03	LPRI1-CSCT-Comp03	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS451	154	127	male	Gillnet			116.7	58.9	35.7	23.2	29.2	6.5	LPRI1-CSMH-Comp03	LPRI1-CSCT-Comp03	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS455	214	147	male	Gillnet			162.4	97.9	64.7	33.2	56.4	8.3	LPRI1-CSMH-Comp03	LPRI1-CSCT-Comp03	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS456	190	142	male	Gillnet			150.9	88.1	57.4	30.7	49.6	7.8	LPRI1-CSMH-Comp03	LPRI1-CSCT-Comp03	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS457	226	161	male	Gillnet			201.4	125.2	85.0	40.2	75.5	9.6	LPRI1-CSMH-Comp03	LPRI1-CSCT-Comp03	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS460	282	164	male	Gillnet			210.2	131.0	89.4	41.7	79.5	9.9	LPRI1-CSMH-Comp03	LPRI1-CSCT-Comp03	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS461	190	139	male	Gillnet			143.6	82.3	53.1	29.2	45.5	7.6	LPRI1-CSMH-Comp04	LPRI1-CSCT-Comp04	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS462	178	142	male	Gillnet	Missing left swimmerette		150.9	88.1	57.4	30.7	49.6	7.8	LPRI1-CSMH-Comp04	LPRI1-CSCT-Comp04	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS463	296	161	male	Gillnet			201.4	125.2	85.0	40.2	75.5	9.6	LPRI1-CSMH-Comp04	LPRI1-CSCT-Comp04	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS464	236	155	male	Gillnet			184.6	113.5	76.3	37.2	67.3	9.0	LPRI1-CSMH-Comp04	LPRI1-CSCT-Comp04	
LPRI	LPRI1	LPRI1-A	LPRI1-A2	LPRI1-CS465	248	154	male	Gillnet			181.8	111.5	74.9	36.7	65.9	8.9	LPRI1-CSMH-Comp04	LPRI1-CSCT-Comp04	
LPRI																			

Table A2. Proposed composite samples for blue crab

Reach	Location ID	Trap ID	Trap Attempt ID	Specimen ID	Weight (g)	Length (mm)	Gender	Collection Method	Comments	Reason for exclusion from composite?	Estimated WB weight	Estimated soft tissue WB weight	Estimated Muscle/HP weight	Estimated Carcass weight	Estimated Muscle-only weight	Estimated HP-only weight	Composite ID (tissue type 1)	Composite ID (tissue type 2)	Composite Notes
LPR1	LPR1J	LPR1J-A	LPR1J-A3	LPR1J-CS590	166	131	male	Gillnet			125.3	66.7	41.5	25.2	34.7	6.8			
LPR1	LPR1J	LPR1J-A	LPR1J-A3	LPR1J-CS591	290	174	male	Gillnet	Missing right leg, left leg		240.8	150.5	103.9	46.6	93.1	10.8			
LPR1	LPR1J	LPR1J-A	LPR1J-A3	LPR1J-CS592	92	115	female	Gillnet			92.8	35.5	18.2	17.3	12.9	5.4	LPR1-CSMT-Comp05	LPR1-CSHT-Comp05	
LPR1	LPR1J	LPR1J-A	LPR1J-A4	LPR1J-CS663	304	163	male	Gillnet	Damaged left swimmerette		207.2	129.1	87.9	41.2	78.2	9.8			
LPR1	LPR1J	LPR1J-A	LPR1J-A4	LPR1J-CS664	344	178	male	Gillnet	Missing 1 right leg		253.8	158.3	109.7	48.6	98.6	11.1			
LPR1	LPR1J	LPR1J-A	LPR1J-A4	LPR1J-CS666	178	137	male	Gillnet			138.9	78.4	50.2	28.2	42.8	7.4			
LPR1	LPR1J	LPR1J-A	LPR1J-A4	LPR1J-CS667	312	162	male	Gillnet			204.3	127.1	86.5	40.7	76.8	9.7			
LPR1	LPR1J	LPR1J-A	LPR1J-A4	LPR1J-CS669	248	151	male	Gillnet	Missing right leg; left spine damaged		173.8	105.7	70.5	35.2	61.9	8.7	LPR1-CSMH-Comp03	LPR1-CSCT-Comp03	
LPR1	LPR1J	LPR1J-A	LPR1J-A4	LPR1J-CS670	114	131	female	Gillnet			125.3	66.7	41.5	25.2	34.7	6.8	LPR1-CSMH-Comp04	LPR1-CSCT-Comp04	
LPR1	LPR1J	LPR1J-A	LPR1J-A4	LPR1J-CS671	228	151	male	Gillnet			173.8	105.7	70.5	35.2	61.9	8.7	LPR1-CSMH-Comp03	LPR1-CSCT-Comp03	
LPR1	LPR1J	LPR1J-A	LPR1J-A4	LPR1J-CS673	168	138	male	Gillnet	Missing left leg		141.3	80.3	51.6	28.7	44.2	7.5	LPR1-CSMH-Comp03	LPR1-CSCT-Comp03	
LPR1	LPR1J	LPR1J-A	LPR1J-A5	LPR1J-CS691	192	142	male	Gillnet			150.9	88.1	57.4	30.7	49.6	7.8	LPR1-CSMH-Comp03	LPR1-CSCT-Comp03	
LPR1	LPR1J	LPR1J-A	LPR1J-A5	LPR1J-CS692	102	114	male	Gillnet			91.0	33.5	16.8	16.8	11.5	5.3			
LPR1	LPR1J	LPR1J-A	LPR1J-A5	LPR1J-CS693	272	157	male	Gillnet			190.1	117.4	79.2	38.2	70.0	9.2			
LPR1	LPR1J	LPR1J-A	LPR1J-A5	LPR1J-CS695	220	150	male	Gillnet	Damaged left swimmerette		171.1	103.7	69.1	34.7	60.5	8.6			
LPR1	LPR1J	LPR1J-A	LPR1J-A5	LPR1J-CS696	310	168	male	Gillnet			222.2	138.8	95.2	43.6	85.0	10.2			
LPR1	LPR1J	LPR1J-A	LPR1J-A5	LPR1J-CS697	218	151	male	Gillnet	Missing left leg; damage to right swimmerettes		173.8	105.7	70.5	35.2	61.9	8.7			
LPR1	LPR1J	LPR1J-A	LPR1J-A5	LPR1J-CS698	182	138	male	Gillnet			141.3	80.3	51.6	28.7	44.2	7.5			
LPR1	LPR1J	LPR1J-A	LPR1J-A5	LPR1J-CS699	96	116	male	Gillnet	Missing left swimmerette		94.7	37.4	19.7	17.7	14.3	5.4			
LPR1	LPR1J	LPR1J-A	LPR1J-A5	LPR1J-CS700	98	115	female	Gillnet	Missing left leg		92.8	35.5	18.2	17.3	12.9	5.4	LPR1-CSMH-Comp03	LPR1-CSCT-Comp03	
LPR1	LPR1J	LPR1J-A	LPR1J-A5	LPR1J-CS701	124	127	male	Gillnet			116.7	58.9	35.7	23.2	29.2	6.5			
LPR1	LPR1K	LPR1K-A	LPR1K-A1	LPR1K-CS347	170	132	male	Gillnet			127.5	68.6	42.9	25.7	36.0	6.9	LPR1-CSMH-Comp06	LPR1-CSCT-Comp06	
LPR1	LPR1K	LPR1K-A	LPR1K-A1	LPR1K-CS348	186	142	male	Gillnet	Right spine broken		150.9	88.1	57.4	30.7	49.6	7.8	LPR1-CSMH-Comp06	LPR1-CSCT-Comp06	
LPR1	LPR1K	LPR1K-A	LPR1K-A1	LPR1K-CS352	138	131	male	Gillnet			125.3	66.7	41.5	25.2	34.7	6.8	LPR1-CSMH-Comp06	LPR1-CSCT-Comp06	
LPR1	LPR1K	LPR1K-A	LPR1K-A1	LPR1K-CS353	140	118	male	Gillnet			98.5	41.3	22.6	18.7	17.0	5.6	LPR1-CSMH-Comp06	LPR1-CSCT-Comp06	
LPR1	LPR1K	LPR1K-A	LPR1K-A1	LPR1K-CS354	114	115	male	Gillnet			92.8	35.5	18.2	17.3	12.9	5.4	LPR1-CSMH-Comp06	LPR1-CSCT-Comp06	
LPR1	LPR1K	LPR1K-A	LPR1K-A1	LPR1K-CS355	288	157	male	Gillnet			190.1	117.4	79.2	38.2	70.0	9.2	LPR1-CSMH-Comp06	LPR1-CSCT-Comp06	
LPR1	LPR1K	LPR1K-A	LPR1K-A1	LPR1K-CS358	102	115	male	Gillnet	Missing left leg		92.8	35.5	18.2	17.3	12.9	5.4	LPR1-CSMT-Comp08		
LPR1	LPR1K	LPR1K-A	LPR1K-A1	LPR1K-CS359	142	117	male	Gillnet	Right spine broken		96.6	39.4	21.1	18.2	15.6	5.5	LPR1-CSMT-Comp08		
LPR1	LPR1K	LPR1K-A	LPR1K-A1	LPR1K-CS360	106	141	female	Gillnet	Missing left leg		148.4	86.2	56.0	30.2	48.3	7.7	LPR1-CSMH-Comp06	LPR1-CSCT-Comp06	
LPR1	LPR1K	LPR1K-A	LPR1K-A2	LPR1K-CS467	218	154	male	Gillnet			181.8	111.5	74.9	36.7	65.9	8.9	LPR1-CSMT-Comp08		
LPR1	LPR1K	LPR1K-A	LPR1K-A2	LPR1K-CS469	178	136	male	Gillnet			136.6	76.4	48.7	27.7	41.5	7.3	LPR1-CSMT-Comp08		
LPR1	LPR1K	LPR1K-A	LPR1K-A2	LPR1K-CS472	164	131	male	Gillnet			125.3	66.7	41.5	25.2	34.7	6.8	LPR1-CSMT-Comp08		
LPR1	LPR1K	LPR1K-A	LPR1K-A2	LPR1K-CS476	254	148	male	Gillnet			165.9	99.8	66.2	33.7	57.8	8.4	LPR1-CSMT-Comp08		
LPR1	LPR1K	LPR1K-A	LPR1K-A2	LPR1K-CS478	190	137	male	Gillnet			138.9	78.4	50.2	28.2	42.8	7.4	LPR1-CSMH-Comp06	LPR1-CSCT-Comp06	
LPR1	LPR1K	LPR1K-A	LPR1K-A2	LPR1K-CS480	118	116	male	Gillnet			94.7	37.4	19.7	17.7	14.3	5.4	LPR1-CSMH-Comp06	LPR1-CSCT-Comp06	
LPR1	LPR1K	LPR1K-A	LPR1K-A2	LPR1K-CS481	280	169	male	Gillnet			225.2	140.8	96.6	44.1	86.3	10.3	LPR1-CSMH-Comp07	LPR1-CSCT-Comp07	
LPR1	LPR1K	LPR1K-A	LPR1K-A2	LPR1K-CS484	178	142	male	Gillnet			150.9	88.1	57.4	30.7	49.6	7.8	LPR1-CSMH-Comp07	LPR1-CSCT-Comp07	
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS501	226	147	male	Gillnet			163.4	97.9	64.7	33.2	56.4	8.3	LPR1-CSMH-Comp07	LPR1-CSCT-Comp07	
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS502	202	149	male	Gillnet			168.5	101.8	67.6	34.2	59.1	8.5	LPR1-CSMH-Comp07	LPR1-CSCT-Comp07	
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS503	278	160	male	Gillnet			198.6	123.2	83.6	39.7	74.1	9.5	LPR1-CSMH-Comp07	LPR1-CSCT-Comp07	
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS505	198	145	male	Gillnet			158.3	94.0	61.8	32.2	53.7	8.1	LPR1-CSMH-Comp07	LPR1-CSCT-Comp07	
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS506	240	150	male	Gillnet			171.1	103.7	69.1	34.7	60.5	8.6	LPR1-CSMH-Comp07	LPR1-CSCT-Comp07	
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS507	232	151	male	Gillnet	Missing left leg		173.8	105.7	70.5	35.2	61.9	8.7	LPR1-CSMH-Comp07	LPR1-CSCT-Comp07	
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS508	124	136	female	Gillnet	Left claw included		136.6	76.4	48.7	27.7	41.5	7.3	LPR1-CSMH-Comp06	LPR1-CSCT-Comp06	
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS509	262	156	male	Gillnet			187.3	115.4	77.8	37.7	68.7	9.1	LPR1-CSMH-Comp07	LPR1-CSCT-Comp07	
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS511	150	131	male	Gillnet			125.3	66.7	41.5	25.2	34.7	6.8	LPR1-CSMH-Comp07	LPR1-CSCT-Comp07	
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS513	200	152	male	Gillnet			176.4	107.6	72.0	35.7	63.2	8.8	LPR1-CSMH-Comp06	LPR1-CSCT-Comp06	
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS515	192	139	male	Gillnet			143.6	82.3	53.1	29.2	45.5	7.6	LPR1-CSMT-Comp08		
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS516	264	158	male	Gillnet			192.9	119.3	80.7	38.7	71.4	9.3	LPR1-CSMT-Comp08		
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS517	272	162	male	Gillnet	Missing left leg		204.3	127.1	86.5	40.7	76.8	9.7	LPR1-CSMT-Comp08		
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS518	168	144	male	Gillnet			155.8	92.0	60.3	31.7	52.3	8.0	LPR1-CSMT-Comp08		
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS520	192	152	male	Gillnet	Missing right swimmerette		176.4	107.6	72.0	35.7	63.2	8.8	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09	
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS521	110	115	male	Gillnet	Missing left leg		92.8	35.5	18.2	17.3	12.9	5.4	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09	
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS522	100	119	female	Gillnet	Both swimmerettes damaged		100.4	43.3	24.0	19.2	18.3	5.7	LPR1-CSMH-Comp07	LPR1-CSCT-Comp07	
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS523	194	139	male	Gillnet			143.6	82.3	53.1	29.2	45.5	7.6	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09	
LPR1	LPR1K	LPR1K-A	LPR1K-A3	LPR1K-CS524	128	118	male	Gillnet	Shell damaged; missing left leg		98.5	41.3	22.6	18.7	17.0	5.6	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09	
LPR1	LPR1K	LPR1K-A	LPR1K-A4	LPR1K-CS607	288	165	male	Gillnet	Missing right leg		213.1	133.0	90.8	42.2	80.9	10.0	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09	
LPR1	LPR1K	LPR1K-A	LPR1K-A4	LPR1K-CS608	92	115	female	Gillnet	Left swimmerette damaged		92.8	35.5	18.2	17.3	12.9	5.4	LPR1-CSMT-Comp08		
LPR1	LPR1K	LPR1K-A	LPR1K-A4	LPR1K-CS609	210	142	male	Gillnet			150.9	88.1	57.4	30.7	49.6	7.8	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09	
LPR1	LPR1K	LPR1K-A	LPR1K-A4	LPR1K-CS611	180	139	male	Gillnet			143.6	82.3	53.1	29.2	45.5	7.6	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09	
LPR1	LPR1K	LPR1K-A	LPR1K-A4	LPR1K-CS612	264	168	male	Gillnet	Missing left leg		222.2	138.8	95.2	43.6	85.0	10.2	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09	
LPR1	LPR1K	LPR1K-A	LPR1K-A4	LPR1K-CS616	112	119	female	Gillnet			100.4	43.3	24.0	19.2	18.3	5.7	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09	
LPR1	LPR1K	LPR1K-A	LPR1K-A4	LPR1K-CS617	266	171	male	Gillnet			231.4	144.7	99.6	45.1	89.1	10.5	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09	
LPR1	LPR1K	LPR1K-A	LPR1K-A4	LPR1K-CS619	98	118	female	Gillnet			98.5	41.3	22.6	18.7	17.0	5.6	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09	
LPR1	LPR1K	LPR1K-A	LPR1K-A4	LPR1K-CS620	186	136	male	Gillnet			136.6	76.4	48.7	27.7	41.5	7.3	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09	
LPR1	LPR1K	LPR1K-A	LPR1K-A4	LPR1K-CS623	226	161	male	Gillnet			201.4	125.2	85.0	40.2	75.5	9.6	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09	
LPR1	LPR1K	LPR1K-A	LPR1K-A4	LPR1K-CS624	256	158	male	Gillnet			192.9	119.3	80.7	38.7	71.4	9.3	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09	
LPR1	LPR1K	LPR1K-A	LPR1K-A5	LPR1K-CS676	324	174	male	Gillnet	Missing left leg		240.8	150.5	103.9	46.6	93.1	10.8	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09	
LPR1	LPR1K	LPR1K-A	LPR1K-A5	LPR1K-CS679	350	170	male	Gillnet	Missing right leg		228.3	142.7	98.1	44.6	87.7	10.4	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09	
LPR1	LPR1K	LPR1K-A	LPR1K-A5	LPR1K-CS680	168	133	male	Gillnet	Missing 2 left legs		129.7	70.6	44.4	26.2	37.4	7.0	LPR1-CSMT-Comp09	LPR1-CSHT-Comp09	
LPR1	LPR1K	LPR1K-A	LPR1K-A5	LPR1K-CS681	260	161	male	Gillnet			201.4	125.2	85.0	40.2</					

Table A2. Proposed composite samples for blue crab

Reach	Location ID	Trap ID	Trap Attempt ID	Specimen ID	Weight (g)	Length (mm)	Gender	Collection Method	Comments	Reason for exclusion from composite?	Estimated WB weight	Estimated soft tissue WB weight	Estimated Muscle/HP weight	Estimated Carcass weight	Estimated Muscle-only weight	Estimated HP-only weight	Composite ID (tissue type 1)	Composite ID (tissue type 2)	Composite Notes
LPR1	LPR1L	LPR1L-A	LPR1L-A3	LPR1L-C5559	304	169	male	Crab Trap			225.2	140.8	96.6	44.1	86.3	10.3	LPR1-CSMT-Comp10		
LPR1	LPR1L	LPR1L-A	LPR1L-A3	LPR1L-C5572	236	158	male	Crab Trap			192.9	119.3	80.7	38.7	71.4	9.3	LPR1-CSMT-Comp10		
LPR1	LPR1L	LPR1L-A	LPR1L-A3	LPR1L-C5573	192	141	male	Crab Trap			148.4	86.2	56.0	30.2	48.3	7.7	LPR1-CSMT-Comp10		
LPR1	LPR1L	LPR1L-A	LPR1L-A5	LPR1L-C5741	234	160	male	Crab Trap	Missing 1 left and 1 right leg		198.6	123.2	83.6	39.7	74.1	9.5	LPR1-CSMT-Comp10		
LPR1	LPR1L	LPR1L-A	LPR1L-A5	LPR1L-C5742	346	170	male	Crab Trap			228.3	142.7	98.1	44.6	87.7	10.4	LPR1-CSMT-Comp10		
LPR1	LPR1M	LPR1M-B	LPR1M-B2	LPR1M-C5486	220	148	male	Crab Trap			165.9	99.8	66.2	33.7	57.8	8.4	LPR1-CSMH-Comp11	LPR1-CSCT-Comp11	
LPR1	LPR1M	LPR1M-B	LPR1M-B2	LPR1M-C5487	106	114	male	Crab Trap			91.0	33.5	16.8	16.8	11.5	5.3	LPR1-CSMH-Comp11	LPR1-CSCT-Comp11	
LPR1	LPR1M	LPR1M-B	LPR1M-B2	LPR1M-C5488	168	141	male	Crab Trap	Left leg included		148.4	86.2	56.0	30.2	48.3	7.7	LPR1-CSMH-Comp11	LPR1-CSCT-Comp11	
LPR1	LPR1M	LPR1M-C	LPR1M-C2	LPR1M-C5492	38	115	female	Crab Trap			92.8	35.5	18.2	17.3	12.9	5.4	LPR1-CSMH-Comp11	LPR1-CSCT-Comp11	
LPR1	LPR1M	LPR1M-C	LPR1M-C2	LPR1M-C5493	188	141	male	Crab Trap			148.4	86.2	56.0	30.2	48.3	7.7	LPR1-CSMH-Comp11	LPR1-CSCT-Comp11	
LPR1	LPR1M	LPR1M-C	LPR1M-C2	LPR1M-C5494	124	144	female	Crab Trap			155.8	92.0	60.3	31.7	52.3	8.0	LPR1-CSMH-Comp11	LPR1-CSCT-Comp11	
LPR1	LPR1M	LPR1M-B	LPR1M-B3	LPR1M-C5555	168	145	male	Crab Trap	Missing left leg		158.3	94.0	61.8	32.2	53.7	8.1	LPR1-CSMH-Comp11	LPR1-CSCT-Comp11	
LPR1	LPR1M	LPR1M-A	LPR1M-A3	LPR1M-C5556	106	140	female	Crab Trap			146.0	84.2	54.5	29.7	46.9	7.7	LPR1-CSMT-Comp12		
LPR1	LPR1M	LPR1M-A	LPR1M-A3	LPR1M-C5558	184	140	male	Crab Trap			146.0	84.2	54.5	29.7	46.9	7.7	LPR1-CSMH-Comp11	LPR1-CSCT-Comp11	
LPR1	LPR1M	LPR1M-C	LPR1M-C3	LPR1M-C5560	282	169	male	Crab Trap			225.2	140.8	96.6	44.1	86.3	10.3	LPR1-CSMT-Comp12		
LPR1	LPR1M	LPR1M-A	LPR1M-A3	LPR1M-C5561	158	154	female	Crab Trap			181.8	111.5	74.9	36.7	65.9	8.9	LPR1-CSMT-Comp12		
LPR1	LPR1M	LPR1M-A	LPR1M-A3	LPR1M-C5575	184	135	male	Crab Trap			134.3	74.5	47.3	27.2	40.1	7.2	LPR1-CSMT-Comp12		
LPR1	LPR1M	LPR1M-A	LPR1M-A4	LPR1M-C5632	272	159	male	Crab Trap			195.7	121.3	82.1	39.2	72.7	9.4	LPR1-CSMT-Comp12		
LPR1	LPR1M	LPR1M-C	LPR1M-C4	LPR1M-C5643	290	163	male	Crab Trap			207.2	129.1	87.9	41.2	78.2	9.8	LPR1-CSMT-Comp12		
LPR1	LPR1M	LPR1M-C	LPR1M-C5	LPR1M-C5732	192	139	male	Crab Trap			143.6	82.3	53.1	29.2	45.5	7.6	LPR1-CSMT-Comp12		
LPR1	LPR1M	LPR1M-A	LPR1M-A5	LPR1M-C5734	112	139	female	Crab Trap			143.6	82.3	53.1	29.2	45.5	7.6	LPR1-CSMT-Comp12		
LPR1	LPR1N	LPR1N-A	LPR1N-A1	LPR1N-C5378	188	143	male	Crab Trap			153.3	90.1	58.9	31.2	51.0	7.9	LPR1-CSMH-Comp13	LPR1-CSCT-Comp13	
LPR1	LPR1N	LPR1N-B	LPR1N-B1	LPR1N-C5379	180	133	male	Crab Trap			129.7	70.6	44.4	26.2	37.4	7.0	LPR1-CSMH-Comp13	LPR1-CSCT-Comp13	
LPR1	LPR1N	LPR1N-C	LPR1N-C2	LPR1N-C5432	162	129	male	Crab Trap			120.9	62.8	38.6	24.2	31.9	6.6	LPR1-CSMH-Comp13	LPR1-CSCT-Comp13	
LPR1	LPR1N	LPR1N-A	LPR1N-A2	LPR1N-C5489	254	157	male	Crab Trap	Missing 2 right legs, right swimmerette damaged		190.1	117.4	79.2	38.2	70.0	9.2	LPR1-CSMH-Comp13	LPR1-CSCT-Comp13	
LPR1	LPR1N	LPR1N-B	LPR1N-B4	LPR1N-C5631	206	139	male	Crab Trap			143.6	82.3	53.1	29.2	45.5	7.6	LPR1-CSMH-Comp13	LPR1-CSCT-Comp13	
LPR1	LPR1N	LPR1N-B	LPR1N-B5	LPR1N-C5731	214	153	male	Crab Trap	Missing 1 left leg		179.1	109.6	73.4	36.2	64.6	8.8	LPR1-CSMH-Comp13	LPR1-CSCT-Comp13	
LPR2	LPR2B	LPR2B-A	LPR2B-A3	LPR2B-C5594	134	126	male	Minnow Trap			114.6	56.9	34.2	22.7	27.9	6.4	LPR2-CSMH-Comp14	LPR2-CSCT-Comp14	2B and 2L located adjacent to each other
LPR2	LPR2B	LPR2B-A	LPR2B-A3	LPR2B-C5600	286	173	male	Minnow Trap			237.7	148.6	102.5	46.1	91.8	10.7	LPR2-CSMH-Comp14	LPR2-CSCT-Comp14	2B and 2L located adjacent to each other
LPR2	LPR2I	LPR2I-A	LPR2I-A1	LPR2I-C5265	228	160	male	Gillnet			198.6	123.2	83.6	39.7	74.1	9.5	LPR2-CSMH-Comp15	LPR2-CSCT-Comp15	
LPR2	LPR2I	LPR2I-A	LPR2I-A1	LPR2I-C5266	200	149	male	Gillnet	Missing left swimmerette		168.5	101.8	67.6	34.2	59.1	8.5	LPR2-CSMH-Comp15	LPR2-CSCT-Comp15	
LPR2	LPR2I	LPR2I-A	LPR2I-A1	LPR2I-C5267	182	137	male	Gillnet			138.9	78.4	50.2	28.2	42.8	7.4	LPR2-CSMH-Comp15	LPR2-CSCT-Comp15	
LPR2	LPR2I	LPR2I-A	LPR2I-A1	LPR2I-C5268	110	136	male	Gillnet			136.6	76.4	48.7	27.7	41.5	7.3	LPR2-CSMH-Comp15	LPR2-CSCT-Comp15	
LPR2	LPR2I	LPR2I-A	LPR2I-A1	LPR2I-C5269	188	135	male	Gillnet			134.3	74.5	47.3	27.2	40.1	7.2	LPR2-CSMH-Comp15	LPR2-CSCT-Comp15	
LPR2	LPR2I	LPR2I-A	LPR2I-A1	LPR2I-C5270	270	122	male	Gillnet			108.4	49.1	28.4	20.7	22.4	6.0	LPR2-CSMH-Comp15	LPR2-CSCT-Comp15	
LPR2	LPR2I	LPR2I-A	LPR2I-A1	LPR2I-C5271	178	135	male	Gillnet			134.3	74.5	47.3	27.2	40.1	7.2	LPR2-CSMH-Comp15	LPR2-CSCT-Comp15	
LPR2	LPR2I	LPR2I-A	LPR2I-A1	LPR2I-C5272	106	125	female	Gillnet			112.5	55.0	32.8	22.2	26.5	6.3	LPR2-CSMH-Comp15	LPR2-CSCT-Comp15	
LPR2	LPR2I	LPR2I-A	LPR2I-A1	LPR2I-C5273	100	118	female	Gillnet			98.5	41.3	22.6	18.7	17.0	5.6	LPR2-CSMH-Comp15	LPR2-CSCT-Comp15	
LPR2	LPR2I	LPR2I-A	LPR2I-A2	LPR2I-C5381	92	116	female	Gillnet			94.7	37.4	19.7	17.7	14.3	5.4	LPR2-CSMH-Comp15	LPR2-CSCT-Comp15	
LPR2	LPR2I	LPR2I-A	LPR2I-A2	LPR2I-C5382	130	119	male	Gillnet	Missing left leg		100.4	43.3	24.0	19.2	18.3	5.7	LPR2-CSMH-Comp15	LPR2-CSCT-Comp15	
LPR2	LPR2I	LPR2I-A	LPR2I-A2	LPR2I-C5383	164	159	female	Gillnet	Missing left swimmerette		195.7	121.3	82.1	39.2	72.7	9.4	LPR2-CSMT-Comp16		
LPR2	LPR2I	LPR2I-A	LPR2I-A2	LPR2I-C5384	146	137	male	Gillnet			138.9	78.4	50.2	28.2	42.8	7.4	LPR2-CSMT-Comp16		
LPR2	LPR2I	LPR2I-A	LPR2I-A3	LPR2I-C5525	208	143	male	Gillnet	Damaged right swimmerette		153.3	90.1	58.9	31.2	51.0	7.9	LPR2-CSMT-Comp16		
LPR2	LPR2I	LPR2I-A	LPR2I-A3	LPR2I-C5526	198	135	male	Gillnet	Missing both swimmerettes		134.3	74.5	47.3	27.2	40.1	7.2			
LPR2	LPR2I	LPR2I-A	LPR2I-A3	LPR2I-C5527	160	134	male	Gillnet	Damaged left swimmerette		132.0	72.5	45.8	26.7	38.7	7.1			
LPR2	LPR2I	LPR2I-A	LPR2I-A4	LPR2I-C625	148	123	male	Gillnet			108.4	51.1	29.9	21.2	23.8	6.1			
LPR2	LPR2I	LPR2I-A	LPR2I-A4	LPR2I-C627	164	130	male	Gillnet			123.1	64.7	40.0	24.7	33.3	6.7			
LPR2	LPR2I	LPR2I-A	LPR2I-A4	LPR2I-C628	136	151	female	Gillnet	Missing right leg and 2 left legs		179.8	105.7	70.5	35.2	61.9	8.7	LPR2-CSMT-Comp16		
LPR2	LPR2I	LPR2I-A	LPR2I-A5	LPR2I-C5743	182	135	male	Gillnet			134.3	74.5	47.3	27.2	40.1	7.2	LPR2-CSMT-Comp16		
LPR2	LPR2I	LPR2I-A	LPR2I-A5	LPR2I-C5744	182	137	male	Gillnet	Missing right leg and swimmerette		138.9	78.4	50.2	28.2	42.8	7.4			
LPR2	LPR2I	LPR2I-A	LPR2I-A5	LPR2I-C5747	132	143	female	Gillnet			153.3	90.1	58.9	31.2	51.0	7.9	LPR2-CSMT-Comp16		
LPR2	LPR2I	LPR2I-A	LPR2I-A5	LPR2I-C5748	200	148	male	Gillnet			165.9	99.8	66.2	33.7	57.8	8.4	LPR2-CSMT-Comp16		
LPR2	LPR2I	LPR2I-A	LPR2I-A5	LPR2I-C5749	182	149	male	Gillnet			168.5	101.8	67.6	34.2	59.1	8.5	LPR2-CSMT-Comp16		
LPR2	LPR2I	LPR2I-A	LPR2I-A5	LPR2I-C5751	172	133	male	Gillnet			129.7	70.6	44.4	26.2	37.4	7.0	LPR2-CSMT-Comp16		
LPR2	LPR2I	LPR2I-A	LPR2I-A1	LPR2I-C5276	226	150	male	Gillnet			171.1	103.7	69.1	34.7	60.5	8.6	LPR2-CSMH-Comp17	LPR2-CSCT-Comp17	
LPR2	LPR2I	LPR2I-A	LPR2I-A1	LPR2I-C5278	192	137	male	Gillnet			138.9	78.4	50.2	28.2	42.8	7.4	LPR2-CSMH-Comp17	LPR2-CSCT-Comp17	
LPR2	LPR2I	LPR2I-A	LPR2I-A1	LPR2I-C5280	136	126	male	Gillnet	Missing right swimmerette; parasites		114.6	56.9	34.2	22.7	27.9	6.4	LPR2-CSMH-Comp17	LPR2-CSCT-Comp17	
LPR2	LPR2I	LPR2I-A	LPR2I-A2	LPR2I-C5385	218	141	male	Gillnet			148.4	86.2	56.0	30.2	48.3	7.7	LPR2-CSMH-Comp17	LPR2-CSCT-Comp17	
LPR2	LPR2I	LPR2I-A	LPR2I-A2	LPR2I-C5386	176	137	male	Gillnet	Missing right swimmerette		138.9	78.4	50.2	28.2	42.8	7.4	LPR2-CSMH-Comp17	LPR2-CSCT-Comp17	
LPR2	LPR2I	LPR2I-A	LPR2I-A2	LPR2I-C5387	184	145	male	Gillnet	Missing 2 left legs		158.3	94.0	61.8	32.2	53.7	8.1	LPR2-CSMH-Comp17	LPR2-CSCT-Comp17	
LPR2	LPR2I	LPR2I-A	LPR2I-A2	LPR2I-C5390	190	143	male	Gillnet			153.3	90.1	58.9	31.2	51.0	7.9	LPR2-CSMH-Comp17	LPR2-CSCT-Comp17	
LPR2	LPR2I	LPR2I-A	LPR2I-A3	LPR2I-C5528	152	158	male	Gillnet			192.9	119.3	80.7	38.7	71.4	9.3	LPR2-CSMH-Comp17	LPR2-CSCT-Comp17	
LPR2	LPR2I	LPR2I-A	LPR2I-A3	LPR2I-C5529	270	144	male	Gillnet	Damaged left spine		155.8	92.0	60.3	31.7	52.3	8.0	LPR2-CSMH-Comp17	LPR2-CSCT-Comp17	
LPR2	LPR2I	LPR2I-A	LPR2I-A3	LPR2I-C5531	224	151	male	Gillnet			173.8	105.7	70.5	35.2	61.9	8.7	LPR2-CSMH-Comp18	LPR2-CSCT-Comp18	
LPR2	LPR2I	LPR2I-A	LPR2I-A3	LPR2I-C5532	146	133	male	Gillnet			129.7	70.6	44.4	26.2	37.4	7.0	LPR2-CSMH-Comp18	LPR2-CSCT-Comp18	
LPR2	LPR2I	LPR2I-A	LPR2I-A3	LPR2I-C5533	138	126	male	Gillnet			114.6	56.9	34.2	22.7	27.9	6.4	LPR2-CSMH-Comp18	LPR2-CSCT-Comp18	
LPR2	LPR2I	LPR2I-A	LPR2I-A3	LPR2I-C5538	140	124	male	Gillnet	Damaged right spine		110.4	53.0	31.3	21.7	25.1	6.2	LPR2-CSMH-Comp18	LPR2-CSCT-Comp18	
LPR2	LPR2I	LPR2I-A	LPR2I-A3	LPR2I-C5539	184	143	male	Gillnet	Damaged left spine		153.3	90.1	58.9	31.2	51.0	7.9	LPR2-CSMH-Comp18	LPR2-CSCT-Comp18	
LPR2	LPR2I	LPR2I-A	LPR2I-A3	LPR2I-C5542	112	115	male	Gillnet			92.8	35.5	18.2	17.3	12.9	5.4	LPR2-CSMH-Comp18	LPR2-CSCT-Comp18	
LPR2	LPR2I	LPR2I-A	LPR2I-A4	LPR2I-C5630	140	130	male	Gillnet	Missing left swimmerette		123.1	64.7	40.0	24.7	33.3	6.7	LPR2-CSMH-Comp18	LPR2-CSCT-Comp18	
LPR2	LPR2I	LPR2I-A	LPR2I-A5	LPR2I-C5723	114														

Table A2. Proposed composite samples for blue crab

Reach	Location ID	Trap ID	Trap Attempt ID	Specimen ID	Weight (g)	Length (mm)	Sex	Gender	Collection Method	Comments	Reason for exclusion from composite?	Estimated WB weight	Estimated soft tissue WB weight	Estimated Muscle/HP weight	Estimated Carcass weight	Estimated Muscle-only weight	Estimated HP-only weight	Composite ID (tissue type 1)	Composite ID (tissue type 2)	Composite Notes
LPR2	LPR2K	LPR2K-A	LPR2K-A1	LPR2K-CS311	278	151	male		Gillnet			173.8	105.7	70.5	35.2	61.9	8.7	LPR2-CSMH-Comp20	LPR2-CSCT-Comp20	
LPR2	LPR2K	LPR2K-A	LPR2K-A1	LPR2K-CS313	232	156	male		Gillnet			187.3	115.4	77.8	37.7	68.7	9.1	LPR2-CSMH-Comp20	LPR2-CSCT-Comp20	
LPR2	LPR2K	LPR2K-A	LPR2K-A2	LPR2K-CS392	154	152	female		Gillnet	Missing 2 right legs		176.4	107.6	72.0	35.7	63.2	8.8	LPR2-CSMH-Comp20	LPR2-CSCT-Comp20	
LPR2	LPR2K	LPR2K-A	LPR2K-A2	LPR2K-CS394	220	147	male		Gillnet			163.4	97.9	64.7	33.2	56.4	8.3	LPR2-CSMH-Comp20	LPR2-CSCT-Comp20	
LPR2	LPR2K	LPR2K-A	LPR2K-A2	LPR2K-CS395	212	148	male		Gillnet			165.9	99.8	66.2	33.7	57.8	8.4	LPR2-CSMH-Comp20	LPR2-CSCT-Comp20	
LPR2	LPR2K	LPR2K-A	LPR2K-A2	LPR2K-CS397	214	144	male		Gillnet			155.8	92.0	60.3	31.7	52.3	8.0	LPR2-CSMH-Comp20	LPR2-CSCT-Comp20	
LPR2	LPR2K	LPR2K-A	LPR2K-A2	LPR2K-CS398	86	116	female		Gillnet	Missing left leg		94.7	37.4	19.7	17.7	14.3	5.4	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A2	LPR2K-CS400	176	136	male		Gillnet	Missing left leg		136.6	76.4	48.7	27.7	41.5	7.3	LPR2-CSMH-Comp20	LPR2-CSCT-Comp20	
LPR2	LPR2K	LPR2K-A	LPR2K-A2	LPR2K-CS401	254	151	male		Gillnet			173.8	105.7	70.5	35.2	61.9	8.7	LPR2-CSMH-Comp20	LPR2-CSCT-Comp20	
LPR2	LPR2K	LPR2K-A	LPR2K-A2	LPR2K-CS403	222	148	male		Gillnet			165.9	99.8	66.2	33.7	57.8	8.4	LPR2-CSMH-Comp20	LPR2-CSCT-Comp20	
LPR2	LPR2K	LPR2K-A	LPR2K-A2	LPR2K-CS404	266	152	male		Gillnet			176.4	107.6	72.0	35.7	63.2	8.8			
LPR2	LPR2K	LPR2K-A	LPR2K-A2	LPR2K-CS405	152	130	male		Gillnet	Missing left leg		123.1	64.7	40.0	24.7	33.3	6.7			
LPR2	LPR2K	LPR2K-A	LPR2K-A2	LPR2K-CS406	200	150	male		Gillnet			171.1	103.7	69.1	34.7	60.5	8.6			
LPR2	LPR2K	LPR2K-A	LPR2K-A2	LPR2K-CS407	178	139	male		Gillnet			143.6	82.3	53.1	29.2	45.5	7.6			
LPR2	LPR2K	LPR2K-A	LPR2K-A2	LPR2K-CS408	96	119	female		Gillnet	Missing 2 left legs		100.4	43.3	24.0	19.2	18.3	5.7	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A3	LPR2K-CS546	190	144	male		Gillnet			155.8	92.0	60.3	31.7	52.3	8.0			
LPR2	LPR2K	LPR2K-A	LPR2K-A3	LPR2K-CS547	202	142	male		Gillnet			150.9	88.1	57.4	30.7	49.6	7.8			
LPR2	LPR2K	LPR2K-A	LPR2K-A3	LPR2K-CS548	230	150	male		Gillnet	Missing right leg		171.1	103.7	69.1	34.7	60.5	8.6	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A3	LPR2K-CS549	232	153	male		Gillnet			179.1	109.6	73.4	36.2	64.6	8.8	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A3	LPR2K-CS550	252	164	male		Gillnet			210.2	131.0	89.4	41.7	79.5	9.5	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A3	LPR2K-CS551	234	153	male		Gillnet			179.1	109.6	73.4	36.2	64.6	8.8	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A3	LPR2K-CS552	158	134	male		Gillnet			132.0	72.5	45.8	26.7	38.7	7.1	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A3	LPR2K-CS553	172	145	male		Gillnet			158.3	94.0	61.8	32.2	53.7	8.1	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A3	LPR2K-CS606	204	142	male		Gillnet			150.9	88.1	57.4	30.7	49.6	7.8	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A4	LPR2K-CS634	148	129	male		Gillnet			120.9	62.8	38.6	24.2	31.9	6.6	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A4	LPR2K-CS635	236	160	male		Gillnet	Missing left leg		198.6	123.2	83.6	39.7	74.1	9.5	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A4	LPR2K-CS636	248	148	male		Gillnet			165.9	99.8	66.2	33.7	57.8	8.4	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A4	LPR2K-CS637	112	115	male		Gillnet			92.8	35.5	18.2	17.3	12.9	5.4	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A4	LPR2K-CS639	134	123	male		Gillnet			108.4	51.1	29.9	21.2	23.8	6.1	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A4	LPR2K-CS640	116	121	male		Gillnet			104.4	47.2	27.0	20.2	21.1	5.9	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A5	LPR2K-CS712	174	134	male		Gillnet			132.0	72.5	45.8	26.7	38.7	7.1	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A5	LPR2K-CS717	226	154	male		Gillnet			181.8	111.5	74.9	36.7	65.9	8.9	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A5	LPR2K-CS715	168	136	male		Gillnet			136.6	76.4	48.7	27.7	41.5	7.3	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A5	LPR2K-CS716	156	135	male		Gillnet			134.3	74.5	47.3	27.2	40.1	7.2	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A5	LPR2K-CS717	224	145	male		Gillnet			158.3	94.0	61.8	32.2	53.7	8.1	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2K	LPR2K-A	LPR2K-A5	LPR2K-CS718	300	162	male		Gillnet			204.3	127.1	86.5	40.7	76.8	9.7	LPR2-CSMT-Comp21	LPR2-CSHT-Comp21	
LPR2	LPR2L	LPR2L-A	LPR2L-A1	LPR2L-CS364	148	131	male		Crab Trap			125.3	66.7	41.5	25.2	34.7	6.8	LPR2-CSMH-Comp14	LPR2-CSCT-Comp14	2B and 2L located adjacent to eachother
LPR2	LPR2L	LPR2L-A	LPR2L-A1	LPR2L-CS380	200	135	male		Crab Trap	Left spine broken		134.3	74.5	47.3	27.2	40.1	7.2	LPR2-CSMH-Comp14	LPR2-CSCT-Comp14	2B and 2L located adjacent to eachother
LPR2	LPR2L	LPR2L-C	LPR2L-C2	LPR2L-CS497	152	144	male		Crab Trap			155.8	92.0	60.3	31.7	52.3	8.0	LPR2-CSMH-Comp14	LPR2-CSCT-Comp14	2B and 2L located adjacent to eachother
LPR2	LPR2L	LPR2L-C	LPR2L-C2	LPR2L-CS499	104	119	female		Crab Trap			100.4	43.3	24.0	19.2	18.3	5.7	LPR2-CSMH-Comp14	LPR2-CSCT-Comp14	2B and 2L located adjacent to eachother
LPR2	LPR2L	LPR2L-A	LPR2L-A4	LPR2L-CS661	244	160	male		Crab Trap	Missing right leg		198.6	123.2	83.6	39.7	74.1	9.5	LPR2-CSMH-Comp14	LPR2-CSCT-Comp14	2B and 2L located adjacent to eachother
LPR2	LPR2L	LPR2L-A	LPR2L-A5	LPR2L-CS721	138	125	male		Crab Trap			112.5	55.0	32.8	22.2	26.5	6.3	LPR2-CSMH-Comp14	LPR2-CSCT-Comp14	2B and 2L located adjacent to eachother
LPR2	LPR2L	LPR2L-C	LPR2L-C5	LPR2L-CS726	248	151	male		Crab Trap			173.8	105.7	70.5	35.2	61.9	8.7	LPR2-CSMH-Comp14	LPR2-CSCT-Comp14	2B and 2L located adjacent to eachother
LPR2	LPR2L	LPR2L-C	LPR2L-C5	LPR2L-CS727	104	117	female		Crab Trap			96.6	39.4	21.1	18.2	15.6	5.5	LPR2-CSMH-Comp14	LPR2-CSCT-Comp14	2B and 2L located adjacent to eachother
LPR2	LPR2M	LPR2M-B	LPR2M-B1	LPR2M-CS365	110	118	male		Crab Trap			98.5	41.3	22.6	18.7	17.0	5.6	LPR2-CSMT-Comp22		
LPR2	LPR2M	LPR2M-B	LPR2M-B1	LPR2M-CS366	162	149	female		Crab Trap			168.5	101.8	67.6	34.2	59.1	8.5	LPR2-CSMT-Comp22		
LPR2	LPR2M	LPR2M-A	LPR2M-A2	LPR2M-CS430	114	140	female		Crab Trap	Missing left leg		146.0	84.2	54.5	29.7	46.9	7.7	LPR2-CSMT-Comp22		
LPR2	LPR2M	LPR2M-B	LPR2M-B2	LPR2M-CS438	116	118	male		Crab Trap			98.5	41.3	22.6	18.7	17.0	5.6	LPR2-CSMT-Comp22		
LPR2	LPR2M	LPR2M-C	LPR2M-C3	LPR2M-CS597	158	134	male		Crab Trap			132.0	72.5	45.8	26.7	38.7	7.1	LPR2-CSMT-Comp22		
LPR2	LPR2M	LPR2M-A	LPR2M-A3	LPR2M-CS598	150	154	female		Crab Trap			181.8	111.5	74.9	36.7	65.9	8.9	LPR2-CSMT-Comp22		
LPR2	LPR2M	LPR2M-B	LPR2M-B3	LPR2M-CS599	192	131	male		Crab Trap	Missing left leg		125.3	66.7	41.5	25.2	34.7	6.8	LPR2-CSMT-Comp22		
LPR2	LPR2M	LPR2M-B	LPR2M-B3	LPR2M-CS601	158	156	female		Crab Trap	Missing right leg		187.3	115.4	77.8	37.7	68.7	9.1	LPR2-CSMT-Comp22		
LPR2	LPR2M	LPR2M-C	LPR2M-C4	LPR2M-CS660	198	138	male		Crab Trap	Missing 2 right legs, 1 left leg		141.3	80.3	51.6	28.7	44.2	7.5	LPR2-CSMT-Comp22		
LPR2	LPR2M	LPR2M-B	LPR2M-B4	LPR2M-CS662	212	128	male		Crab Trap	Missing right spine		118.8	60.8	37.1	23.7	30.6	6.5	LPR2-CSMT-Comp22		
LPR2	LPR2M	LPR2M-C	LPR2M-C5	LPR2M-CS720	122	124	male		Crab Trap			110.4	53.0	31.3	21.7	25.1	6.2	LPR2-CSMT-Comp22		
LPR2	LPR2N	LPR2N-C	LPR2N-C1	LPR2N-CS363	132	124	male		Crab Trap			110.4	53.0	31.3	21.7	25.1	6.2	LPR2-CSMT-Comp23		
LPR2	LPR2N	LPR2N-A	LPR2N-A1	LPR2N-CS368	140	129	male		Crab Trap			120.9	62.8	38.6	24.2	31.9	6.6	LPR2-CSMT-Comp23		
LPR2	LPR2N	LPR2N-A	LPR2N-A1	LPR2N-CS369	122	122	male		Crab Trap			106.4	49.1	28.4	20.7	22.4				

Table A2. Proposed composite samples for blue crab

Reach	Location ID	Trap ID	Trap Attempt ID	Specimen ID	Weight (g)	Length (mm)	Gender	Collection Method	Comments	Reason for exclusion from composite?	Estimated WB weight	Estimated soft tissue WB weight	Estimated Muscle/HP weight	Estimated Carcass weight	Estimated Muscle-only weight	Estimated HP-only weight	Composite ID (tissue type 1)	Composite ID (tissue type 2)	Composite Notes
LP3	LP3N	LP3N-A	LP3N-A3	LP3N-CS051	98	116	female	Gillnet			94.7	37.4	19.7	17.7	14.3	5.4	LP3-CSMH-Comp26	LP3-CSCT-Comp26	LP3N, LP3G, and LP3H located within approximately 0.5 miles
LP3	LP3N	LP3N-A	LP3N-A3	LP3N-CS075	216	168	male	Gillnet			222.2	138.8	95.2	43.6	85.0	10.2	5.4	LP3-CSCT-Comp26	LP3N, LP3G, and LP3H located within approximately 0.5 miles
LP3	LP3N	LP3N-A	LP3N-A4	LP3N-CS078	94	119	female	Gillnet	Missing part of right swimmerette		100.4	43.3	24.0	19.2	18.3	5.7	LP3-CSMH-Comp26	LP3-CSCT-Comp26	LP3N, LP3G, and LP3H located within approximately 0.5 miles
LP3	LP3N	LP3N-A	LP3N-A5	LP3N-CS112	110	123	male	Gillnet			108.4	51.1	29.9	21.2	23.8	6.1	LP3-CSMH-Comp26	LP3-CSCT-Comp26	LP3N, LP3G, and LP3H located within approximately 0.5 miles
LP3	LP3N	LP3N-A	LP3N-A1	LP3N-CS002	128	136	male	Gillnet			136.6	76.4	48.7	27.7	41.5	7.3	LP3-CSMH-Comp27	LP3-CSCT-Comp27	
LP3	LP3N	LP3N-A	LP3N-A1	LP3N-CS003	159	151	male	Gillnet			173.8	105.7	70.5	35.2	61.9	8.7	LP3-CSMH-Comp27	LP3-CSCT-Comp27	
LP3	LP3N	LP3N-A	LP3N-A2	LP3N-CS034	98	117	male	Gillnet			96.6	39	21.1	18.2	15.6	5.5	LP3-CSMH-Comp27	LP3-CSCT-Comp27	
LP3	LP3N	LP3N-A	LP3N-A2	LP3N-CS036	74	116	female	Gillnet			94.7	37.4	19.7	17.7	14.3	5.4	LP3-CSMH-Comp27	LP3-CSCT-Comp27	
LP3	LP3N	LP3N-A	LP3N-A2	LP3N-CS039	126	122	male	Gillnet			106.4	49.1	28.4	20.7	22.4	6.0	LP3-CSMH-Comp27	LP3-CSCT-Comp27	
LP3	LP3N	LP3N-A	LP3N-A2	LP3N-CS040	90	146	male	Gillnet			160.8	95.9	63.3	32.7	55.1	8.2	LP3-CSMH-Comp27	LP3-CSCT-Comp27	
LP3	LP3N	LP3N-A	LP3N-A3	LP3N-CS062	112	133	male	Gillnet			129.7	70.6	44.4	26.2	37.4	7.0	LP3-CSMH-Comp27	LP3-CSCT-Comp27	
LP3	LP3N	LP3N-A	LP3N-A3	LP3N-CS063	234	168	male	Gillnet			222.2	138.8	95.2	43.6	85.0	10.2	LP3-CSMH-Comp27	LP3-CSCT-Comp27	
LP3	LP3N	LP3N-A	LP3N-A3	LP3N-CS065	132	151	female	Gillnet			173.8	105.7	70.5	35.2	61.9	8.7	LP3-CSMH-Comp27	LP3-CSCT-Comp27	
LP3	LP3N	LP3N-A	LP3N-A3	LP3N-CS069	160	141	male	Gillnet	Missing left eye, damaged last 2 right legs		148.4	86.2	56.0	30.2	48.3	7.7	LP3-CSMH-Comp27	LP3-CSCT-Comp27	
LP3	LP3N	LP3N-A	LP3N-A3	LP3N-CS070	124	126	male	Gillnet			114.6	56.9	34.2	22.7	27.9	6.4	LP3-CSMH-Comp28	LP3-CSCT-Comp28	
LP3	LP3N	LP3N-A	LP3N-A4	LP3N-CS081	134	140	male	Gillnet			146.0	84.2	54.5	29.7	46.9	7.7	LP3-CSMH-Comp28	LP3-CSCT-Comp28	
LP3	LP3N	LP3N-A	LP3N-A4	LP3N-CS083	140	132	male	Gillnet			127.5	68.6	42.9	25.7	36.0	6.9	LP3-CSMH-Comp28	LP3-CSCT-Comp28	
LP3	LP3N	LP3N-A	LP3N-A4	LP3N-CS086	90	122	female	Gillnet	Detached right claw, included		106.4	49.1	28.4	20.7	22.4	6.0	LP3-CSMH-Comp28	LP3-CSCT-Comp28	
LP3	LP3N	LP3N-A	LP3N-A4	LP3N-CS087	138	126	male	Gillnet			114.6	56.9	34.2	22.7	27.9	6.4	LP3-CSMH-Comp28	LP3-CSCT-Comp28	
LP3	LP3N	LP3N-A	LP3N-A4	LP3N-CS088	134	132	male	Gillnet			127.5	68.6	42.9	25.7	36.0	6.9	LP3-CSMH-Comp28	LP3-CSCT-Comp28	
LP3	LP3N	LP3N-A	LP3N-A5	LP3N-CS090	134	128	male	Gillnet			118.8	60.8	37.1	23.7	30.6	6.5	LP3-CSMH-Comp28	LP3-CSCT-Comp28	
LP3	LP3N	LP3N-A	LP3N-A5	LP3N-CS091	96	114	female	Gillnet			91.0	33.5	16.8	16.8	11.5	5.3	LP3-CSMH-Comp28	LP3-CSCT-Comp28	
LP3	LP3N	LP3N-A	LP3N-A5	LP3N-CS092	202	146	male	Gillnet			160.8	95.9	63.3	32.7	55.1	8.2	LP3-CSMH-Comp28	LP3-CSCT-Comp28	
LP3	LP3N	LP3N-A	LP3N-A5	LP3N-CS093	214	151	male	Gillnet			173.8	105.7	70.5	35.2	61.9	8.7	LP3-CSMT-Comp29		
LP3	LP3N	LP3N-A	LP3N-A5	LP3N-CS094	186	146	male	Gillnet			160.8	95.9	63.3	32.7	55.1	8.2	LP3-CSMT-Comp29		
LP3	LP3N	LP3N-A	LP3N-A5	LP3N-CS096	222	147	male	Gillnet			163.4	97.9	64.7	33.2	56.4	6.9	LP3-CSMT-Comp29		
LP3	LP3N	LP3N-A	LP3N-A5	LP3N-CS097	226	152	male	Gillnet			176.4	107.6	72.0	35.7	63.2	8.8	LP3-CSMT-Comp29		
LP3	LP3N	LP3N-A	LP3N-A5	LP3N-CS099	80	116	female	Gillnet			94.7	37.4	19.7	17.7	14.3	5.4	LP3-CSMH-Comp28	LP3-CSCT-Comp28	
LP3	LP3N	LP3N-A	LP3N-A5	LP3N-CS100	96	124	female	Gillnet			110.4	53.0	31.3	21.7	25.1	6.2	LP3-CSMT-Comp29		
LP3	LP3N	LP3N-A	LP3N-A5	LP3N-CS102	108	126	female	Gillnet			114.6	56.9	34.2	22.7	27.9	6.4	LP3-CSMT-Comp29		
LP3	LP3N	LP3N-A	LP3N-A5	LP3N-CS106	170	125	male	Gillnet			112.5	55.0	32.8	22.2	26.5	6.3	LP3-CSMT-Comp29		
LP3	LP3N	LP3N-A	LP3N-A5	LP3N-CS107	150	137	male	Gillnet			138.9	78.4	50.2	28.2	42.8	7.4	LP3-CSMT-Comp29		
LP4	LP4F	LP4F-A	LP4F-A5	LP4F-CS158	140	138	male	Crab Trap			141.3	80.3	51.6	28.7	44.2	7.5	LP4-CSMH-Comp30	LP4-CSCT-Comp30	composite mass < 150 g; 4F and 4O near each other
LP4	LP4G	LP4G-B	LP4G-B5	LP4G-CS153	100	130	male	Crab Trap			123.1	64.7	40.0	24.7	33.3	6.7	LP4-CSMH-Comp31	LP4-CSCT-Comp31	composite mass < 150 g
LP4	LP4G	LP4G-B	LP4G-B7	LP4G-CS877	206	155	male	Crab Trap			184.6	113.5	76.3	37.2	67.3	9.0	LP4-CSMH-Comp31	LP4-CSCT-Comp31	composite mass < 150 g
LP4	LP4G	LP4G-B	LP4G-B7	LP4G-CS878	186	166	female	Crab Trap			216.1	134.9	92.3	42.6	82.3	10.0	LP4-CSMH-Comp31	LP4-CSCT-Comp31	composite mass < 150 g
LP4	LP4G	LP4G-B	LP4G-B10	LP4G-CS890	144	141	male	Crab Trap	Left claw included		148.4	86.2	56.0	30.2	48.3	7.7	LP4-CSMH-Comp31	LP4-CSCT-Comp31	composite mass < 150 g
LP4	LP4H	LP4H-A	LP4H-A9	LP4H-CS872	166	140	male	Crab Trap	Missing left leg		146.0	84.2	54.5	29.7	46.9	7.7	LP4-CSMH-Comp32	LP4-CSCT-Comp32	4H and 4L located adjacent to each other
LP4	LP4L	LP4L-A	LP4L-A1	LP4L-CS126	68	115	male	Gillnet	Missing left swimmerette		92.8	35.5	18.2	17.3	12.9	5.4	LP4-CSMH-Comp32	LP4-CSCT-Comp32	4H and 4L located adjacent to each other
LP4	LP4L	LP4L-A	LP4L-A1	LP4L-CS127	116	148	female	Gillnet	Mature		165.9	99.8	66.2	33.7	57.8	8.4	LP4-CSMH-Comp32	LP4-CSCT-Comp32	4H and 4L located adjacent to each other
LP4	LP4L	LP4L-A	LP4L-A6	LP4L-CS825	150	139	male	Gillnet			143.6	82.3	53.1	29.2	45.5	7.6	LP4-CSMH-Comp32	LP4-CSCT-Comp32	4H and 4L located adjacent to each other
LP4	LP4L	LP4L-A	LP4L-A6	LP4L-CS826	138	127	male	Gillnet			116.7	58.9	35.7	23.2	29.2	6.5	LP4-CSMH-Comp32	LP4-CSCT-Comp32	4H and 4L located adjacent to each other
LP4	LP4L	LP4L-A	LP4L-A7	LP4L-CS844	142	136	male	Gillnet			136.6	76.4	48.7	27.7	41.5	7.3	LP4-CSMH-Comp32	LP4-CSCT-Comp32	4H and 4L located adjacent to each other
LP4	LP4O	LP4O-A	LP4O-A1	LP4O-CS130	130	136	male	Gillnet			136.6	76.4	48.7	27.7	41.5	7.3	LP4-CSMH-Comp30	LP4-CSCT-Comp30	composite mass < 150 g; 4F and 4O near each other
LP4	LP4O	LP4O-A	LP4O-A1	LP4O-CS131	82	118	female	Gillnet			98.5	41.3	22.6	18.7	17.0	5.6	LP4-CSMH-Comp30	LP4-CSCT-Comp30	composite mass < 150 g; 4F and 4O near each other
LP4	LP4O	LP4O-A	LP4O-A6	LP4O-CS823	104	125	male	Gillnet			112.5	55.0	32.8	22.2	26.5	6.3	LP4-CSMH-Comp30	LP4-CSCT-Comp30	composite mass < 150 g; 4F and 4O near each other
LP4	LP4O	LP4O-A	LP4O-A7	LP4O-CS843	128	151	female	Gillnet	Missing right swimmerette		173.8	105.7	70.5	35.2	61.9	8.7	LP4-CSMH-Comp30	LP4-CSCT-Comp30	composite mass < 150 g; 4F and 4O near each other
LP4	LP4P	LP4P-A	LP4P-A1	LP4P-CS132	24	115	female	Gillnet	Broken right spine; left claw detached (included)		92.8	35.5	18.2	17.3	12.9	5.4	LP4-CSMH-Comp33	LP4-CSCT-Comp33	composite mass < 150 g; composite sample contains one crab that
LP4	LP4P	LP4P-A	LP4P-A1	LP4P-CS133	112	131	male	Gillnet			125.3	66.7	41.5	25.2	34.7	6.8	LP4-CSMH-Comp33	LP4-CSCT-Comp33	composite mass < 150 g; composite sample contains one crab that
LP4	LP4P	LP4P-A	LP4P-A2	LP4P-CS141	110	127	male	Gillnet	Missing 2 left legs		116.7	58.9	35.7	23.2	29.2	6.5	LP4-CSMH-Comp33	LP4-CSCT-Comp33	composite mass < 150 g; composite sample contains one crab that
LP4	LP4P	LP4P-A	LP4P-A8	LP4P-CS858	212	168	male	Gillnet			222.2	138.8	95.2	43.6	85.0	10.2	LP4-CSMH-Comp33	LP4-CSCT-Comp33	composite mass < 150 g; composite sample contains one crab that
LP4	LP4P	LP4P-A	LP4P-A8	LP4P-CS859	122	123	male	Gillnet			108.4	51.1	29.9	21.2	23.8	6.1	LP4-CSMH-Comp33	LP4-CSCT-Comp33	composite mass < 150 g; composite sample contains one crab that
LP5	LP5E	LP5E-A	LP5E-A1	LP5E-CS122	106	120	male	Gillnet			102.4	45.2	25.5	19.7	19.7	5.8	LP5-CSMH-Comp34	LP5-CSCT-Comp34	5E and 5M located near each other
LP5	LP5E	LP5E-A	LP5E-A7	LP5E-CS857	86	120	male	Gillnet			102.4	45.2	25.5	19.7	19.7	5.8	LP5-CSMH-Comp34	LP5-CSCT-Comp34	5E and 5M located near each other
LP5	LP5J	LP5J-B	LP5J-B3	LP5J-CS148	96	127	male	Trotline			116.7	58.9	35.7	23.2	29.2	6.5	LP5-CSMT-Comp36		5J and 5O located near each other
LP5	LP5M	LP5M-A	LP5M-A3	LP5M-CS152	94	120	male	Crab Trap			102.4	45.2	25.5	19.7	19.7	5.8	LP5-CSMH-Comp34	LP5-CSCT-Comp34	5E and 5M located near each other
LP5	LP5M	LP5M-C	LP5M-C3	LP5M-CS157	70	140	female	Crab Trap			146.0	84.2	54.5	29.7	46.9	7.7	LP5-CSMH-Comp34	LP5-CSCT-Comp34	5E and 5M located near each other
LP5	LP5M	LP5M-C	LP5M-C5	LP5M-CS166	84	120	female	Crab Trap			102.4	45.2	25.5	19.7	19.7	5.8	LP5-CSMH-Comp34	LP5-CSCT-Comp34	5E and 5M located near each other
LP5	LP5M	LP5M-B	LP5M-B3	LP5M-CS752	100	123	male	Crab Trap	trap lost on 8/19/09 was recovered		108.4	51.1	29.9	21.2	23.8	6.1	LP5-CSMH-Comp34	LP5-CSCT-Comp34	5E and 5M located near each other
LP5	LP5M	LP5M-B	LP5M-B8	LP5M-CS889	136	136	male	Crab Trap	Missing left leg		136.6	76.4	48.7	27.7	41.5	7.3	LP5-CSMH-Comp34	LP5-CSCT-Comp34	5E and 5M located near each other
LP5	LP5O	LP5O-C	LP5O-C4	LP5O-CS160	130	138	male	Crab Trap			141.3	80.3	51.6	28.7	44.2	7.5	LP5-CSMH-Comp35	LP5-CSCT-Comp35	
LP5	LP5O	LP5O-A	LP5O-A6	LP5O-CS829	110	133	male	Crab Trap			129.7	70.6	44.4	26.2	37.4	7.0	LP5-CSMH-Comp35	LP5-CSCT-Comp35	
LP5	LP5O	LP5O-A	LP5O-A6	LP5O-CS831	186	149	male	Crab Trap			168.5	101.8	67.6	34.2	59.1	8.5	LP5-CSMH-Comp35	LP5-CSCT-Comp35	
LP5	LP5O	LP5O-B	LP5O-B6	LP5O-CS832	158	142	male	Crab Trap			150.9	88.1	57.4	30.7	49.6	7.8	LP5-CSMH-Comp35	LP5-CSCT-Comp35	
LP5	LP5O	LP5O-B	LP5O-B6	LP5O-CS834	80	114	male	Crab Trap	Missing 2 right legs		91.0	33.5	16.8	16.8	11.5	5.3	LP5-CSMT-Comp36		5J and 5O located near each other
LP5	LP5O	LP5O-B	LP5O-B6	LP5O-CS835	120	129	male	Crab Trap			120.9	62.8	38.6	24.2	31.9	6.6	LP5-CSMH-Comp35	LP5-CSCT-Comp35	
LP5	LP5O	LP5O-A	LP5O-A7	LP5O-CS848	88	114	female	Crab Trap			91.0	33.5	16.8	16.8	11.5	5.3	LP5-CSMH-Comp35	LP5-CSCT-Comp35	
LP5	LP5O	LP5O-B	LP5O-B8	LP5O-CS862	114														

Table A2. Proposed composite samples for blue crab

Reach	Location ID	Trap ID	Trap Attempt ID	Specimen ID	Weight (g)	Length (mm)	Gender	Collection Method	Comments	Reason for exclusion from composite?	Estimated WB weight	Estimated soft tissue WB weight	Estimated Muscle/HP weight	Estimated Carcass weight	Estimated Muscle-only weight	Estimated HP-only weight	Composite ID (tissue type 1)	Composite ID (tissue type 2)	Composite Notes
LPR6	LPR6G	LPR6G-C	LPR6G-C5	LPR6G-CS250	138	139	male	Crab Trap			143.6	82.3	53.1	29.2	45.5	7.6	LPR6-CSMH-Comp41		
LPR6	LPR6G	LPR6G-A	LPR6G-A6	LPR6G-CS830	170	141	male	Crab Trap			148.4	86.2	56.0	30.2	48.3	7.7	LPR6-CSMH-Comp42		
LPR6	LPR6G	LPR6G-C	LPR6G-C4	LPR6G-CS228	166	144	male	Crab Trap			155.8	92.0	60.3	31.7	52.3	8.0	LPR6-CSMH-Comp42		
LPR6	LPR6G	LPR6G-A	LPR6G-A5	LPR6G-CS257	226	160	male	Crab Trap			198.6	123.2	83.6	39.7	74.1	9.5	LPR6-CSMT-Comp43		
LPR6	LPR6G	LPR6G-B	LPR6G-B6	LPR6G-CS833	226	167	male	Crab Trap			219.1	136.9	93.7	43.1	83.6	10.1	LPR6-CSMT-Comp43		
LPR6	LPR6H	LPR6H-B	LPR6H-B5	LPR6H-CS245	104	116	male	Crab Trap	Right spine damaged		94.7	37.4	19.7	17.7	14.3	5.4	LPR6-CSMH-Comp44		6H and 6M located near each other
LPR6	LPR6H	LPR6H-B	LPR6H-B7	LPR6H-CS854	144	143	male	Crab Trap			153.3	90.1	58.2	31.2	51.9	7.9	LPR6-CSMH-Comp44		6H and 6M located near each other
LPR6	LPR6H	LPR6H-A	LPR6H-A7	LPR6H-CS856	138	127	male	Crab Trap	Damaged right swimmerette		116.7	58.9	35.7	23.2	29.2	6.5	LPR6-CSMH-Comp44		6H and 6M located near each other
LPR6	LPR6H	LPR6H-B	LPR6H-B8	LPR6H-CS861	154	141	male	Crab Trap			148.4	86.2	56.0	30.2	48.3	7.7	LPR6-CSMH-Comp44		6H and 6M located near each other
LPR6	LPR6M	LPR6M-A	LPR6M-A3	LPR6M-CS203	130	135	male	Gillnet			134.3	74.5	47.3	27.2	40.1	7.2	LPR6-CSMH-Comp44		6H and 6M located near each other
LPR6	LPR6N	LPR6N-A	LPR6N-A3	LPR6N-CS202	120	131	male	Gillnet			125.3	66.7	41.5	25.2	34.7	6.8	LPRX-CSHT-Comp65		insufficient mass for composite; not near other locations; HT-sample
LPR6	LPR6N	LPR6N-A	LPR6N-A5	LPR6N-CS243	146	123	male	Gillnet			108.4	51.1	29.9	21.2	23.8	6.1	LPRX-CSHT-Comp65		insufficient mass for composite; not near other locations; HT-sample
LPR6	LPR6N	LPR6N-A	LPR6N-A5	LPR6N-CS244	194	155	male	Gillnet			184.6	113.5	76.3	37.2	67.3	9.0	LPRX-CSHT-Comp65		insufficient mass for composite; not near other locations; HT-sample
LPR7	LPR7F	LPR7F-C	LPR7F-C1	LPR7F-CS178	176	146	male	Crab Trap			160.8	95.9	63.2	32.7	55.1	8.2	LPR7-CSMH-Comp45		
LPR7	LPR7F	LPR7F-C	LPR7F-C1	LPR7F-CS180	136	132	male	Crab Trap			127.5	68.6	42.9	25.7	36.0	6.9	LPR7-CSMH-Comp46		
LPR7	LPR7F	LPR7F-C	LPR7F-C1	LPR7F-CS181	96	129	female	Crab Trap			120.9	62.8	38.6	24.2	31.9	6.6	LPR7-CSMH-Comp46		
LPR7	LPR7F	LPR7F-C	LPR7F-C2	LPR7F-CS186	154	145	male	Crab Trap			158.3	94.0	61.8	32.2	53.7	8.1	LPR7-CSMH-Comp46		
LPR7	LPR7F	LPR7F-C	LPR7F-C2	LPR7F-CS187	150	142	male	Crab Trap			150.9	88.1	57.4	30.7	49.6	7.8	LPR7-CSMT-Comp47		
LPR7	LPR7F	LPR7F-A	LPR7F-A3	LPR7F-CS210	140	133	male	Crab Trap			128.7	70.6	44.4	26.2	37.4	7.0	LPR7-CSMT-Comp47		
LPR7	LPR7F	LPR7F-A	LPR7F-A1	LPR7F-CS212	166	149	male	Crab Trap			168.3	101.8	67.6	34.2	59.1	8.5	LPR7-CSMT-Comp47		
LPR7	LPR7F	LPR7F-C	LPR7F-C3	LPR7F-CS214	106	126	male	Crab Trap			114.6	56.9	34.2	22.7	27.9	6.4	LPR7-CSMT-Comp47		
LPR7	LPR7F	LPR7F-A	LPR7F-A3	LPR7F-CS216	128	130	male	Crab Trap			123.1	64.7	40.0	24.7	33.3	6.7	LPR7-CSMH-Comp45		
LPR7	LPR7F	LPR7F-A	LPR7F-A4	LPR7F-CS230	152	141	male	Crab Trap			148.4	86.2	56.0	30.2	48.3	7.7	LPR7-CSMH-Comp45		
LPR7	LPR7F	LPR7F-B	LPR7F-B4	LPR7F-CS237	96	120	male	Crab Trap			102.4	45.2	25.5	19.7	19.7	5.8	LPR7-CSMH-Comp45		
LPR7	LPR7F	LPR7F-A	LPR7F-A4	LPR7F-CS238	90	115	male	Crab Trap			92.8	35.5	18.2	17.3	12.9	5.4	LPR7-CSMH-Comp46		
LPR7	LPR7G	LPR7G-A	LPR7G-A1	LPR7G-CS169	170	148	male	Crab Trap			165.9	99.8	66.2	33.7	57.8	8.4	LPR7-CSMH-Comp48		
LPR7	LPR7G	LPR7G-A	LPR7G-A1	LPR7G-CS172	182	157	male	Crab Trap			190.1	117.4	79.2	38.2	70.0	9.2	LPR7-CSMH-Comp48		
LPR7	LPR7G	LPR7G-B	LPR7G-B1	LPR7G-CS173	134	134	male	Crab Trap			132.0	72.5	45.8	26.7	38.7	7.1	LPR7-CSMH-Comp48		
LPR7	LPR7G	LPR7G-C	LPR7G-C1	LPR7G-CS174	234	164	male	Crab Trap			210.2	131.0	89.4	41.7	79.5	9.9	LPR7-CSMH-Comp49		
LPR7	LPR7G	LPR7G-C	LPR7G-C1	LPR7G-CS175	114	135	male	Crab Trap			134.3	74.5	47.3	27.2	40.1	7.2	LPR7-CSMH-Comp50		
LPR7	LPR7G	LPR7G-C	LPR7G-C2	LPR7G-CS188	76	114	female	Crab Trap			91.0	33.5	16.8	16.8	11.5	5.3	LPR7-CSMH-Comp50		
LPR7	LPR7G	LPR7G-C	LPR7G-C2	LPR7G-CS189	228	175	male	Crab Trap			244.0	152.5	105.4	47.1	94.5	10.8	LPR7-CSMH-Comp50		
LPR7	LPR7G	LPR7G-B	LPR7G-B2	LPR7G-CS193	110	127	male	Crab Trap			116.7	58.9	35.7	23.2	29.2	6.5	LPR7-CSMH-Comp49		
LPR7	LPR7G	LPR7G-B	LPR7G-B3	LPR7G-CS220	194	146	male	Crab Trap			160.8	95.9	63.2	32.7	55.1	8.2	LPR7-CSMH-Comp49		
LPR7	LPR7G	LPR7G-C	LPR7G-C3	LPR7G-CS223	176	152	male	Crab Trap			176.4	107.6	72.0	35.7	63.2	8.8	LPR7-CSMH-Comp49		
LPR7	LPR7G	LPR7G-A	LPR7G-A3	LPR7G-CS224	148	144	male	Crab Trap			155.8	92.0	60.3	31.7	52.3	8.0	LPR7-CSMT-Comp51		
LPR7	LPR7G	LPR7G-A	LPR7G-A3	LPR7G-CS225	140	131	male	Crab Trap			125.3	66.7	41.5	25.2	34.7	6.8	LPR7-CSMT-Comp51		
LPR7	LPR7G	LPR7G-C	LPR7G-C3	LPR7G-CS227	106	125	male	Crab Trap			112.5	55.0	32.8	22.2	26.5	6.1	LPR7-CSMT-Comp51		
LPR7	LPR7G	LPR7G-C	LPR7G-C4	LPR7G-CS229	170	144	male	Crab Trap			155.8	92.0	60.3	31.7	52.3	8.0	LPR7-CSMT-Comp51		
LPR7	LPR7G	LPR7G-C	LPR7G-C4	LPR7G-CS231	244	165	male	Crab Trap			213.1	133.0	90.8	42.2	80.9	10.0	LPR7-CSMT-Comp52		
LPR7	LPR7G	LPR7G-A	LPR7G-A4	LPR7G-CS232	160	142	male	Crab Trap			150.9	88.1	57.4	30.7	49.6	7.8	LPR7-CSMT-Comp52		
LPR7	LPR7G	LPR7G-A	LPR7G-A5	LPR7G-CS262	194	161	male	Crab Trap			201.4	125.2	85.0	40.2	75.5	9.6	LPR7-CSMT-Comp52		
LPR7	LPR7G	LPR7G-C	LPR7G-C5	LPR7G-CS264	170	145	male	Crab Trap			158.3	94.0	61.8	32.2	53.7	8.1	LPR7-CSMT-Comp52		
LPR7	LPR7H	LPR7H-B	LPR7H-B2	LPR7H-CS194	140	137	male	Crab Trap	Missing left leg		138.9	78.4	50.2	28.2	42.8	7.4	LPR7-CSMH-Comp53		
LPR7	LPR7H	LPR7H-B	LPR7H-B3	LPR7H-CS209	84	115	male	Crab Trap			92.8	35.5	18.2	17.3	12.9	5.0	LPR7-CSMH-Comp53		
LPR7	LPR7H	LPR7H-B	LPR7H-B4	LPR7H-CS234	104	124	male	Crab Trap			110.4	53.0	31.3	21.7	25.1	6.2	LPR7-CSMH-Comp53		
LPR7	LPR7H	LPR7H-C	LPR7H-C5	LPR7H-CS253	234	168	male	Crab Trap			222.2	138.8	95.2	43.6	85.0	10.2	LPR7-CSMH-Comp53		
LPR7	LPR7H	LPR7H-B	LPR7H-B5	LPR7H-CS256	218	155	male	Crab Trap			184.6	113.5	76.3	37.2	67.3	9.0	LPR7-CSMH-Comp53		
LPR7	LPR7M	LPR7M-A	LPR7M-A1	LPR7M-CS168	152	150	male	Gillnet			171.1	103.7	69.1	34.7	60.5	8.6	LPRX-CSHT-Comp65		insufficient mass for composite; not near other locations; HT-sample
LPR7	LPR7O	LPR7O-C	LPR7O-C5	LPR7O-CS259	152	143	male	Trotline			153.3	90.1	58.9	31.2	51.0	7.9	LPRX-CSHT-Comp65		insufficient mass for composite; not near other locations; HT-sample
LPR8	LPR8B	LPR8B-B	LPR8B-B2	LPR8B-CS770	148	135	male	Crab Trap			134.3	74.5	47.3	27.2	40.1	7.2	LPR8-CSMH-Comp54		8J and 8V located near each other
LPR8	LPR8J	LPR8J-B	LPR8J-B2	LPR8B-CS772	222	167	male	Crab Trap			219.1	136.9	93.7	43.1	83.6	10.1	LPR8-CSMH-Comp55		8J and 8V located near each other
LPR8	LPR8J	LPR8J-C	LPR8J-C3	LPR8B-CS776	134	137	male	Crab Trap			138.9	78.4	50.2	28.2	42.8	7.4	LPR8-CSMH-Comp55		8J and 8V located near each other
LPR8	LPR8K	LPR8K-B	LPR8K-B1	LPR8K-CS757	126	130	male	Crab Trap			123.1	64.7	40.0	24.7	33.3	6.7	LPR8-CSMH-Comp58		
LPR8	LPR8K	LPR8K-A	LPR8K-A2	LPR8K-CS765	202	161	male	Crab Trap			201.4	125.2	85.0	40.2	75.5	9.6	LPR8-CSMT-Comp60		
LPR8	LPR8K	LPR8K-C	LPR8K-C2	LPR8K-CS766	156	140	male	Crab Trap			146.0	84.2	54.5	29.7	46.9	7.7	LPR8-CSMT-Comp60		
LPR8	LPR8K	LPR8K-B	LPR8K-B2	LPR8K-CS768	172	145	male	Crab Trap			158.3	94.0	61.8	32.2	53.7	8.1	LPR8-CSMT-Comp59		
LPR8	LPR8K	LPR8K-B	LPR8K-B2	LPR8K-CS769	126	128	male	Crab Trap			118.8	60.8	37.1	23.7	30.6	6.5	LPR8-CSMH-Comp57		
LPR8	LPR8K	LPR8K-B	LPR8K-B3	LPR8K-CS783	148	140	male	Crab Trap			146.0	84.2	54.5	29.7	46.9	7.7	LPR8-CSMH-Comp58		
LPR8	LPR8K	LPR8K-B	LPR8K-B3	LPR8K-CS784	160	140	male	Crab Trap			146.0	84.2	54.5	29.7	46.9	7.7	LPR8-CSMH-Comp57		
LPR8	LPR8K	LPR8K-B	LPR8K-B3	LPR8K-CS786	102	121	male	Crab Trap			104.4	47.2	27.0	20.2	21.1	5.9	LPR8-CSMH-Comp57		
LPR8	LPR8K	LPR8K-B	LPR8K-B3	LPR8K-CS787	112	123	male	Crab Trap			108.4	51.1	29.9	21.2	23.8	6.1	LPR8-CSMH-Comp58		
LPR8	LPR8K	LPR8K-C	LPR8K-C3	LPR8K-CS788	138	142	male	Crab Trap			150.9	88.1	57.4	30.7	49.6	7.8	LPR8-CSMT-Comp59		
LPR8	LPR8K	LPR8K-A	LPR8K-A3	LPR8K-CS789	128	134	male	Crab Trap			132.0	72.5	45.8	26.7	38.7	7.1	LPR8-CSMT-Comp60		
LPR8	LPR8K	LPR8K-B	LPR8K-B4	LPR8K-CS802	152	145	male	Crab Trap			158.3	94.0	61.8	32.2	53.7	8.1	LPR8-CSMT-Comp59		
LPR8	LPR8K	LPR8K-B	LPR8K-B4	LPR8K-CS803	136	128	male	Crab Trap			118.8	60.8	37.1	23.7	30.6	6.5	LPR8-CSMH-Comp58		
LPR8	LPR8K	LPR8K-C	LPR8K-C4	LPR8K-CS806	208	174	male	Crab Trap			240.8	150.5	103.9	46.6	93.1	10.8	LPR8-CSMH-Comp57		
LPR8	LPR8R	LPR8R-A	LPR8R-A1	LPR8R-CS756	96	122	male	Gillnet			106.4	49.1	28.4	20.7	22.4	6.0	LPR8-CSMH-Comp56		
LPR8	LPR8R	LPR8R-A	LPR8R-A2	LPR8R-CS762	185	153	male	Gillnet			179.1	109.6	73.4	36.2	64.6	8.8	LPR8-CSMH-Comp56		
LPR8	LPR8R	LPR8R-A	LPR8R-A3	LPR8R-CS778	198	153	male	Gillnet			179.1	109.6	73.4	36.2	64.6	8.8	LPR8-CSMH-Comp56		
LPR8	LPR8R	LPR8R-A	LPR8R-A4	LPR8R-CS808	114	125	male	Gillnet			112.5	55.0	32.8	22.2	26.5	6.3	LPR8-CSMH-Comp56		
LPR8	LPR8S	LPR8S-A	LPR8S-A3	LPR8S-CS790	206	159	male	Gillnet			195.7	121.3	82.1	39.2	72.7	9.4	LPR8-CSMH-Comp61		
LPR8	LPR8S	LPR8S-A	LPR8S-A3	LPR8S-CS792	94	116	male	Gillnet	Missing right swimmerette										

Table A2. Proposed composite samples for blue crab

Reach	Location ID	Trap ID	Trap Attempt ID	Specimen ID	Weight (g)	Length (mm)	Gender	Collection Method	Comments	Reason for exclusion from composite?	Estimated WB weight	Estimated soft tissue WB weight	Estimated Muscle/HP weight	Estimated Carcass weight	Estimated Muscle-only weight	Estimated HP-only weight	Composite ID (tissue type 1)	Composite ID (tissue type 2)	Composite Notes
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A2	LPR1I-CS416	50	93	female	Gillnet		< 114 mm									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A2	LPR1I-CS417	156	139	male	Gillnet	Missing left leg, left claw	Missing one claw							7.6		
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A3	LPR1I-CS566	140	140	male	Gillnet	Missing left claw and swimmerette	Missing one claw							7.7		
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A3	LPR1I-CS567	140	135	female	Gillnet	Soft shell; missing left leg and swimmerette	Soft shell crab									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A3	LPR1I-CS568	174	146	male	Gillnet	Missing right claw and leg	Missing one claw							8.2		
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A3	LPR1I-CS571	104	124	female	Gillnet	Soft-shell; missing both claws and legs	Missing both claws (also soft shell crab)									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A4	LPR1I-CS649	51	90	female	Gillnet		< 114 mm									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A4	LPR1I-CS652	180	159	female	Gillnet	Soft shell; damaged right spine, right claw; Damage to crab noted (also soft shell crab)										
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A5	LPR1I-CS704	70	114	female	Gillnet	Missing right leg, left swimmerette, right claw	Missing one claw							5.3		
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A5	LPR1I-CS705	166	140	male	Gillnet	Missing right claw	Missing one claw							7.7		
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A5	LPR1I-CS709	270	172	male	Gillnet	Missing right claws and 2 right legs	Missing one claw							10.6		
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A5	LPR1I-CS710	80	113	female	Gillnet		< 114 mm									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A5	LPR1I-CS711	54	92	female	Gillnet		< 114 mm									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A1	LPR1I-CS337	154	135	male	Gillnet	Missing left claw	Missing one claw							7.2		
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A1	LPR1I-CS345	128	142	female	Gillnet	Soft shell	Soft shell crab									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A2	LPR1I-CS439	100	127	female	Gillnet	Recently molted, soft shell	Soft shell crab									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A2	LPR1I-CS442	206	166	male	Gillnet	Missing right claw, right leg	Missing one claw							10.0		
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A2	LPR1I-CS447	84	112	female	Gillnet	Missing left claw	< 114 mm (also missing one claw)									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A2	LPR1I-CS452	70	103	female	Gillnet	Regrowing right claw; missing left leg	< 114 mm (also incomplete claw)									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A2	LPR1I-CS453	79	111	female	Gillnet	Missing left claw and 2 right legs	< 114 mm (also missing one claw)									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A2	LPR1I-CS454	86	106	female	Gillnet		< 114 mm									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A2	LPR1I-CS458	50	94	male	Gillnet	Both claws missing	< 114 mm (also missing both claws)									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A2	LPR1I-CS459	312	176	male	Gillnet	Missing portion of left claw	Damage to crab noted									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A2	LPR1I-CS466	86	107	female	Gillnet		< 114 mm									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A3	LPR1I-CS581	112	124	female	Gillnet	Soft shell; missing left claw; damaged leg	Missing one claw (also soft shell crab)									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A3	LPR1I-CS582	198	146	male	Gillnet	Missing right claw	Missing one claw							8.2		
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A3	LPR1I-CS584	104	148	female	Gillnet	Damaged abdominal apron; missing left leg	Missing one claw (also damage noted)									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A3	LPR1I-CS585	74	112	female	Gillnet	Missing left swimmerette	< 114 mm									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A3	LPR1I-CS587	16	83	male	Gillnet		< 114 mm									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A3	LPR1I-CS593	70	106	female	Gillnet		< 114 mm									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A4	LPR1I-CS665	242	146	male	Gillnet	Right claw damaged	Damage to crab noted									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A4	LPR1I-CS668	140	159	female	Gillnet	Missing right claw, swimmerette	Missing one claw							9.4		
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A4	LPR1I-CS672	138	127	male	Gillnet	Damaged left claw	Damage to crab noted									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A4	LPR1I-CS674	242	153	male	Gillnet	Left claw damaged	Damage to crab noted									
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A5	LPR1I-CS690	258	165	male	Gillnet	Missing right claw and leg	Missing one claw							10.0		
LPR1	LPR1-I	LPR1-I-A	LPR1-I-A5	LPR1I-CS694	174	150	male	Gillnet	Missing right claw	Missing one claw							8.6		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A1	LPR1K-CS349	148	152	female	Gillnet	Missing left claw, right swimmerette	Missing one claw							8.8		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A1	LPR1K-CS350	136	132	male	Gillnet	Missing right claw, right leg	Missing one claw							6.9		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A1	LPR1K-CS351	88	113	female	Gillnet	Missing left leg	< 114 mm									
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A1	LPR1K-CS356	138	147	female	Gillnet	Missing left claw; recently molted	Missing one claw (also soft shell crab)									
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A1	LPR1K-CS357	58	98	female	Gillnet	Missing left leg	< 114 mm									
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A2	LPR1K-CS468	88	127	female	Gillnet	Soft shell; both claws and left swimmerette	Missing both claws (also soft shell crab)									
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A2	LPR1K-CS470	70	107	female	Gillnet		< 114 mm									
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A2	LPR1K-CS471	196	151	male	Gillnet	Missing right claw, right leg	Missing one claw							8.7		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A2	LPR1K-CS473	236	155	male	Gillnet	Missing left claw	Missing one claw							9.0		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A2	LPR1K-CS474	256	159	male	Gillnet	Cracked shell; 1 eye missing	Damage to crab noted									
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A2	LPR1K-CS475	96	125	female	Gillnet	Soft shell; left spine damaged	Soft shell crab									
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A2	LPR1K-CS477	190	142	male	Gillnet	Missing left claws and left leg	Missing one claw							7.8		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A2	LPR1K-CS479	170	146	male	Gillnet	Missing left claw	Missing one claw							8.2		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A2	LPR1K-CS482	214	149	male	Gillnet	Missing left claw; left spine damaged	Missing one claw							8.5		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A2	LPR1K-CS483	150	134	male	Gillnet	Missing left claw	Missing one claw							7.1		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A3	LPR1K-CS504	68	102	female	Gillnet		< 114 mm									
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A3	LPR1K-CS510	214	156	male	Gillnet	Missing right claw	Missing one claw							9.1		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A3	LPR1K-CS512	170	143	male	Gillnet	Missing left claw	Missing one claw							7.9		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A3	LPR1K-CS514	84	110	female	Gillnet	Missing right leg	< 114 mm									
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A3	LPR1K-CS519	94	112	male	Gillnet	Missing right leg	< 114 mm									
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A4	LPR1K-CS610	282	172	male	Gillnet	Missing right claw	Missing one claw							10.6		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A4	LPR1K-CS613	256	163	male	Gillnet	Missing left claw, left leg	Missing one claw							9.8		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A4	LPR1K-CS614	110	137	female	Gillnet	Soft shell; missing right claw and swimmerette	Missing one claw (also soft shell crab)									
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A4	LPR1K-CS615	74	108	female	Gillnet		< 114 mm									
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A4	LPR1K-CS618	104	106	male	Gillnet		< 114 mm									
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A4	LPR1K-CS621	114	129	male	Gillnet	Missing left leg, portion of left claw	Damage to crab noted									
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A4	LPR1K-CS622	6	47	male	Gillnet		< 114 mm									
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A5	LPR1K-CS677	150	126	male	Gillnet	Missing left claw	Missing one claw							6.4		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A5	LPR1K-CS678	344	199	male	Gillnet	Missing left claw	Missing one claw							13.1		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A5	LPR1K-CS682	86	122	female	Gillnet	Missing right claw and 2 right legs; 2 left leg	Missing one claw							6.0		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A5	LPR1K-CS683	106	120	male	Gillnet	Missing left claw and 3 left legs	Missing one claw							5.8		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A5	LPR1K-CS684	224	159	male	Gillnet	Missing left claw; left swimmerette damaged	Missing one claw							9.4		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A5	LPR1K-CS685	166	135	male	Gillnet	Missing left claw	Missing one claw							7.2		
LPR1	LPR1-K	LPR1-K-A	LPR1-K-A5	LPR1K-CS688	122	143	female	Gillnet	Missing right claw; left claw included	Missing one claw							7.9		
LPR1	LPR1-L	LPR1-L-A	LPR1-L-A1	LPR1L-CS274	30	71	female	Crab Trap		< 114 mm									
LPR1	LPR1-L	LPR1-L-B	LPR1-L-B1	LPR1L-CS275	56	92	male	Crab Trap		< 114 mm									
LPR1	LPR1-L	LPR1-L-B	LPR1-L-B2	LPR1L-CS498	100	112	male	Crab Trap	Damaged left claw, missing right leg	< 114 mm (also damage to crab)									
LPR1	LPR1-L	LPR1-L-A	LPR1-L-A3	LPR1L-CS562	60	97	female	Crab Trap		< 114 mm									
LPR1	LPR1-L	LPR1-L-B	LPR1-L-B3	LPR1L-CS563	70	66	male	Crab Trap		< 114 mm									
LPR1	LPR1-L	LPR1-L-B	LPR1-L-B4	LPR1L-CS642	60	99	male	Crab Trap	Recently molted	Soft shell crab									
LPR1	LPR1-L	LPR1-L-A	LPR1-L-A4	LPR1L-CS645	45	89	female	Crab Trap		< 114 mm									
LPR1	LPR1-L	LPR1-L-B	LPR1-L-B4	LPR1L-CS646	15	75	male	Crab Trap		< 114 mm									
LPR1	LPR1-L	LPR1-L-A	LPR1-L-A4	LPR1L-CS648	52	91	female	Crab Trap		< 114 mm									
LPR1	LPR1-L	LPR1-L-B	LPR1-L-B5	LPR1L-CS728	36	83	female	Crab Trap		< 114 mm									
LPR1	LPR1-L	LPR1-L-A	LPR1-L-A5	LPR1L-CS736	186	160	male	Crab Trap	Missing both claws	Missing both claws							9.5		
LPR1	LPR1-L	LPR1-L-B	LPR1-L-B5	LPR1L-CS753	14	54	male	Crab Trap		< 114 mm									
LPR1	LPR1-M	LPR1-M-A	LPR1-M-A3	LPR1M-CS543	70	113	female	Crab Trap		< 114 mm									
LPR1	LPR1-M	LPR1-M-B	LPR1-M-B3	LPR1M-CS545	84	117	male	Crab Trap	Recently molted	Soft shell crab									
LPR1	LPR1-M	LPR1-M-C	LPR1-M-C3	LPR1M-CS574	58	92	female	Crab Trap		< 114 mm									
LPR1	LPR1-M	LPR1-M-B	LPR1-M-B3	LPR1M-CS576	20	83	male	Crab Trap		< 114 mm									
LPR1	LPR1-M	LPR1-M-A	LPR1-M-A4	LPR1M-CS644	63	98	female	Crab Trap		< 114 mm									
LPR1	LPR1-M	LPR1-M-B	LPR1-M-B4	LPR1M-CS654	34	78	female	Crab Trap		< 114 mm									
LPR1	LPR1-M	LPR1-M-B	LPR1-M-B4	LPR1M-CS656	26	72	male	Crab Trap		< 114 mm									
LPR1	LPR1-M	LPR1-M-A	LPR1-M-A5	LPR1M-CS733															

Table A2. Proposed composite samples for blue crab

Reach	Location ID	Trap ID	Trap Attempt ID	Specimen ID	Weight (g)	Length (mm)	Gender	Collection Method	Comments	Reason for exclusion from composite?	Estimated WB weight	Estimated soft tissue WB weight	Estimated Muscle/HP weight	Estimated Carcass weight	Estimated Muscle-only weight	Estimated HP-only weight	Composite ID (tissue type 1)	Composite ID (tissue type 2)	Composite Notes
LPR1	LPR1N	LPR1N-A	LPR1N-A2	LPR1N-CS490	170	141	male	Crab Trap	Left claw missing	Missing one claw						7.7			
LPR1	LPR1N	LPR1N-B	LPR1N-B2	LPR1N-CS495	46	82	male	Crab Trap		< 114 mm									
LPR1	LPR1N	LPR1N-B	LPR1N-B2	LPR1N-CS496	88	111	male	Crab Trap	Missing right claw	< 114 mm (also missing one claw)									
LPR1	LPR1N	LPR1N-B	LPR1N-B3	LPR1N-CS544	150	136	male	Crab Trap	Missing left claw, 2 right legs	Missing one claw						7.3			
LPR1	LPR1N	LPR1N-B	LPR1N-B4	LPR1N-CS647	54	88	male	Crab Trap		< 114 mm									
LPR1	LPR1N	LPR1N-B	LPR1N-B4	LPR1N-CS653	46	83	male	Crab Trap		< 114 mm									
LPR1	LPR1N	LPR1N-B	LPR1N-B4	LPR1N-CS655	120	113	male	Crab Trap		< 114 mm									
LPR1	LPR1O	LPR1O-B	LPR1O-B4	LPR1O-CS675	8	46	male	Eel Trap	Missing left claw	< 114 mm (also missing one claw)									
LPR1	LPR1R	LPR1R-A	LPR1R-A1	LPR1R-CS376	12	50	female	Dip Net		< 114 mm									
LPR2	LPR2I	LPR2I-A	LPR2I-A4	LPR2I-CS626	104	104	female	Gillnet	Regrowing right claw; missing right leg; mol	Missing one claw (also soft shell crab)									
LPR2	LPR2I	LPR2I-A	LPR2I-A5	LPR2I-CS745	170	133	male	Gillnet	Damaged left claw	Damage to crab noted									
LPR2	LPR2I	LPR2I-A	LPR2I-A5	LPR2I-CS746	134	163	female	Gillnet	Soft shell; missing both claws	Missing both claws (also soft shell crab)									
LPR2	LPR2I	LPR2I-A	LPR2I-A5	LPR2I-CS750	84	111	female	Gillnet	Missing both claws, 1 left leg	< 114 mm (also missing both claws)									
LPR2	LPR2J	LPR2J-A	LPR2J-A1	LPR2J-CS277	194	154	male	Gillnet	Missing left claw	Missing one claw						8.9	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2J	LPR2J-A	LPR2J-A1	LPR2J-CS279	88	103	male	Gillnet		< 114 mm									
LPR2	LPR2J	LPR2J-A	LPR2J-A1	LPR2J-CS281	304	187	male	Gillnet	Missing right claw	Missing one claw						12.0			outside of size range
LPR2	LPR2J	LPR2J-A	LPR2J-A2	LPR2J-CS388	116	149	female	Gillnet	Recently molted; missing left claw	Missing one claw (also soft shell crab)									
LPR2	LPR2J	LPR2J-A	LPR2J-A2	LPR2J-CS389	124	127	male	Gillnet	Missing right claw	Missing one claw						6.5	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2J	LPR2J-A	LPR2J-A3	LPR2J-CS391	88	104	male	Gillnet		< 114 mm									
LPR2	LPR2J	LPR2J-A	LPR2J-A3	LPR2J-CS530	196	146	male	Gillnet	Missing right claw	Missing one claw						8.2	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2J	LPR2J-A	LPR2J-A3	LPR2J-CS534	54	92	male	Gillnet		< 114 mm									
LPR2	LPR2J	LPR2J-A	LPR2J-A3	LPR2J-CS535	60	99	female	Gillnet	Missing left leg	< 114 mm									
LPR2	LPR2J	LPR2J-A	LPR2J-A3	LPR2J-CS536	62	106	female	Gillnet	Regrowing right claw	< 114 mm (also incomplete claw)									
LPR2	LPR2J	LPR2J-A	LPR2J-A3	LPR2J-CS537	34	85	female	Gillnet	Missing left swimmerette	< 114 mm									
LPR2	LPR2J	LPR2J-A	LPR2J-A3	LPR2J-CS540	132	152	female	Gillnet	Soft body	Soft shell crab									
LPR2	LPR2J	LPR2J-A	LPR2J-A3	LPR2J-CS541	232	162	male	Gillnet	Missing right claw, 2 left legs	Missing one claw						9.7	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2J	LPR2J-A	LPR2J-A4	LPR2J-CS629	194	143	male	Gillnet	Missing left claw	Missing one claw						7.9	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2J	LPR2J-A	LPR2J-A5	LPR2J-CS722	212	151	male	Gillnet	Damaged right claw	Damage to crab noted									
LPR2	LPR2K	LPR2K-A	LPR2K-A1	LPR2K-CS285	74	100	female	Gillnet		< 114 mm									
LPR2	LPR2K	LPR2K-A	LPR2K-A1	LPR2K-CS286	188	148	male	Gillnet	Missing right claw	Missing one claw						8.4	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2K	LPR2K-A	LPR2K-A1	LPR2K-CS288	152	124	male	Gillnet	Missing left claw and left spine	Missing one claw						6.2	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2K	LPR2K-A	LPR2K-A1	LPR2K-CS291	48	85	female	Gillnet		< 114 mm									
LPR2	LPR2K	LPR2K-A	LPR2K-A1	LPR2K-CS292	58	100	female	Gillnet	Right swimmerette detached, included	< 114 mm									
LPR2	LPR2K	LPR2K-A	LPR2K-A1	LPR2K-CS293	194	152	male	Gillnet	Missing left claw	Missing one claw						8.8	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2K	LPR2K-A	LPR2K-A1	LPR2K-CS294	208	155	male	Gillnet	Missing left claw	Missing one claw						9.0	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2K	LPR2K-A	LPR2K-A1	LPR2K-CS299	136	120	male	Gillnet	Missing portion of left swimmerette and left	Missing one claw						5.8	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2K	LPR2K-A	LPR2K-A1	LPR2K-CS303	200	147	male	Gillnet	Missing right claw, right leg	Missing one claw						8.3	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2K	LPR2K-A	LPR2K-A1	LPR2K-CS306	154	148	male	Gillnet	Missing both claws	Missing both claws						8.4	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2K	LPR2K-A	LPR2K-A1	LPR2K-CS312	66	98	female	Gillnet		< 114 mm									
LPR2	LPR2K	LPR2K-A	LPR2K-A2	LPR2K-CS393	294	177	male	Gillnet	Missing right claw	Missing one claw						11.1	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2K	LPR2K-A	LPR2K-A2	LPR2K-CS396	152	133	male	Gillnet	Missing left claw, right claw included	Missing one claw						7.0	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2K	LPR2K-A	LPR2K-A2	LPR2K-CS399	198	143	male	Gillnet	Missing portion of left claw and tip of right	Damage to crab noted									
LPR2	LPR2K	LPR2K-A	LPR2K-A2	LPR2K-CS402	178	135	male	Gillnet	Missing portion of abdominal apron, left claw	Missing one claw (also damage noted)									
LPR2	LPR2K	LPR2K-A	LPR2K-A3	LPR2K-CS554	88	109	female	Gillnet	Missing right swimmerette	< 114 mm									
LPR2	LPR2K	LPR2K-A	LPR2K-A4	LPR2K-CS633	172	147	male	Gillnet	Missing left claw	Missing one claw						8.3	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2K	LPR2K-A	LPR2K-A4	LPR2K-CS638	132	130	male	Gillnet	Missing right claw, right leg	Missing one claw						6.7	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2K	LPR2K-A	LPR2K-A5	LPR2K-CS713	60	96	female	Gillnet		< 114 mm									
LPR2	LPR2K	LPR2K-A	LPR2K-A5	LPR2K-CS714	132	128	male	Gillnet	Missing left claw, leg, and swimmerette	Missing one claw									
LPR2	LPR2K	LPR2K-A	LPR2K-A5	LPR2K-CS719	64	100	female	Gillnet	Missing left claw and swimmerette	< 114 mm (also missing one claw)						6.5	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2L	LPR2L-B	LPR2L-B1	LPR2L-CS375	42	81	male	Crab Trap		< 114 mm									
LPR2	LPR2L	LPR2L-A	LPR2L-A2	LPR2L-CS434	96	108	male	Crab Trap		< 114 mm									
LPR2	LPR2L	LPR2L-A	LPR2L-A2	LPR2L-CS435	74	105	male	Crab Trap	Regrowing right leg	< 114 mm									
LPR2	LPR2L	LPR2L-A	LPR2L-A2	LPR2L-CS436	123	132	male	Crab Trap	Missing all right legs and right claw	Missing one claw						6.9	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2L	LPR2L-C	LPR2L-C3	LPR2L-CS596	252	163	male	Crab Trap	Missing right claw	Missing one claw						9.8	LPR2-CSHT-Comp63		HT-sample done across locations using crabs missing claws
LPR2	LPR2L	LPR2L-C	LPR2L-C3	LPR2L-C603	35	81	female	Crab Trap		< 114 mm									
LPR2	LPR2M	LPR2M-B	LPR2M-B2	LPR2M-CS429	42	83	male	Crab Trap		< 114 mm									
LPR2	LPR2M	LPR2M-B	LPR2M-B2	LPR2M-CS500	78	108	male	Crab Trap	Missing right and left leg	< 114 mm									
LPR2	LPR2M	LPR2M-B	LPR2M-B3	LPR2M-CS595	86	126	female	Crab Trap	Soft shell; missing right claw; left claw included	Missing one claw (also soft shell crab)									
LPR2	LPR2M	LPR2M-B	LPR2M-B3	LPR2M-CS602	32	100	female	Crab Trap		< 114 mm									
LPR2	LPR2M	LPR2M-B	LPR2M-B4	LPR2M-CS657	158	142	male	Crab Trap	Soft shell	Soft shell crab									
LPR2	LPR2M	LPR2M-C	LPR2M-C5	LPR2M-CS730	66	100	female	Crab Trap		< 114 mm									
LPR2	LPR2N	LPR2N-C	LPR2N-C1	LPR2N-CS361	48	93	female	Crab Trap		< 114 mm									
LPR2	LPR2N	LPR2N-C	LPR2N-C1	LPR2N-CS367	154	136	male	Crab Trap	Missing left claw	Missing one claw						7.3			HT-sample done across locations using crabs missing claws
LPR2	LPR2N	LPR2N-B	LPR2N-B2	LPR2N-CS431	160	138	male	Crab Trap	Missing left claw, left leg	Missing one claw						7.5			HT-sample done across locations using crabs missing claws
LPR2	LPR2N	LPR2N-B	LPR2N-B3	LPR2N-CS605	78	100	male	Crab Trap		< 114 mm									
LPR2	LPR2N	LPR2N-B	LPR2N-B4	LPR2N-CS659	168	137	male	Crab Trap	Missing left claw	Missing one claw						7.4			HT-sample done across locations using crabs missing claws
LPR2	LPR2N	LPR2N-C	LPR2N-C5	LPR2N-CS737	130	126	male	Crab Trap	Regrowing left claw	Incomplete claw						6.4			HT-sample done across locations using crabs missing claws
LPR3	LPR3F	LPR3F-A	LPR3F-A1	LPR3F-CS012	48	95	female	Crab Trap		< 114 mm									
LPR3	LPR3F	LPR3F-A	LPR3F-A1	LPR3F-CS013	58	109	male	Crab Trap	Missing right claw	< 114 mm (also missing one claw)									
LPR3	LPR3F	LPR3F-B	LPR3F-B1	LPR3F-CS014	48	90	male	Crab Trap		< 114 mm									
LPR3	LPR3F	LPR3F-A	LPR3F-A2	LPR3F-CS028	86	125	female	Crab Trap	Missing left claw	Missing one claw						6.3	LPR3-CSHT-Comp64		HT-sample done across locations using crabs missing claws
LPR3	LPR3F	LPR3F-B	LPR3F-B3	LPR3F-CS056	48	97	male	Crab Trap	Recently molted soft-shell; missing right leg	Soft shell crab									
LPR3	LPR3F	LPR3F-B	LPR3F-B3	LPR3F-CS057	16	71	male	Crab Trap	Recently molted soft-shell	Soft shell crab									
LPR3	LPR3F	LPR3F-B	LPR3F-B5	LPR3F-CS089	70	103	male	Crab Trap		< 114 mm									
LPR3	LPR3F	LPR3F-A	LPR3F-A5	LPR3F-CS118	40	80	male	Crab Trap	Parasite attached; regrowth of left claw	< 114 mm (also incomplete claw)									
LPR3	LPR3G	LPR3G-A	LPR3G-A2	LPR3G-CS030	30	76	female	Crab Trap		< 114 mm									
LPR3	LPR3G	LPR3G-A	LPR3G-A2	LPR3G-CS031	12	60	male	Crab Trap		< 114 mm									
LPR3	LPR3G	LPR3G-B	LPR3G-B2	LPR3G-CS032	58	105	female	Crab Trap		< 114 mm									
LPR3	LPR3G	LPR3G-C	LPR3G-C3	LPR3G-CS055	82	111	male	Crab Trap		< 114 mm									
LPR3	LPR3G	LPR3G-C	LPR3G-C4	LPR3G-CS073	30	70	male	Crab Trap		< 114 mm									
LPR3	LPR3H	LPR3H-A	LPR3H-A2	LPR3H-CS029	60	100	male	Crab Trap		< 114 mm									
LPR3	LPR3H	LPR3H-A	LPR3H-A3	LPR3H-CS058	20	62	male	Crab Trap		< 114 mm									
LPR3	LPR3H	LPR3H-A	LPR3H-A3	LPR3H-CS059	108	121	male	Crab Trap	Missing right claw	Missing one claw						5.9	LPR3-CSHT-Comp64		HT-sample done across locations using crabs missing claws
LPR3	LPR3H	LPR3H-A	LPR3H-A3	LPR3H-CS060	10	52	male	Crab Trap	Detached right claw	< 114 mm (also missing claw)									
LPR3	LPR3H	LPR3H-C	LPR3H-C5	LPR3H-CS119	34	79	female	Crab Trap		< 114 mm									
LPR3	LPR3J	LPR3J-C	LPR3J-C3	LPR3J-CS054	6														

Table A2. Proposed composite samples for blue crab

Reach	Location ID	Trap ID	Trap Attempt ID	Specimen ID	Weight (g)	Length (mm)	Gender	Collection Method	Comments	Reason for exclusion from composite?	Estimated WB weight	Estimated soft tissue WB weight	Estimated Muscle/HP weight	Estimated Carcass weight	Estimated Muscle-only weight	Estimated HP-only weight	Composite ID (tissue type 1)	Composite ID (tissue type 2)	Composite Notes
LP3	LP3M	LP3M-A	LP3M-A5	LP3M-CS116	78	119	male	Gillnet	Missing both claws and 1 right leg	Missing both claws							5.7	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A5	LP3M-CS117	70	112	female	Gillnet		< 114 mm									
LP3	LP3M	LP3M-A	LP3M-A1	LP3M-CS004	62	109	female	Gillnet	Missing left rear leg	< 114 mm									
LP3	LP3M	LP3M-A	LP3M-A1	LP3M-CS005	16	64	male	Gillnet	Right claw detached	< 114 mm (also missing claw)									
LP3	LP3M	LP3M-A	LP3M-A3	LP3M-CS046	112	127	male	Gillnet	Missing left claw	Missing one claw							6.5	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A3	LP3M-CS047	58	100	male	Gillnet	Missing left claw and 2nd left leg	< 114 mm (also missing one claw)									
LP3	LP3M	LP3M-A	LP3M-A3	LP3M-CS049	94	127	male	Gillnet	Missing left claw, legs and swimmerets	Missing one claw							6.5	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A3	LP3M-CS050	72	110	male	Gillnet	Missing left claw and right legs	< 114 mm (also missing one claw)									
LP3	LP3M	LP3M-A	LP3M-A3	LP3M-CS052	120	135	male	Gillnet	Missing left claw	Missing one claw							7.2	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A3	LP3M-CS053	34	79	male	Gillnet		< 114 mm									
LP3	LP3M	LP3M-A	LP3M-A4	LP3M-CS076	90	125	male	Gillnet	Missing right swimmerette, left claw	Missing one claw							6.3	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A4	LP3M-CS080	156	131	male	Gillnet	Missing left claw	Missing one claw							6.8	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A5	LP3M-CS109	68	115	female	Gillnet	Missing both claws; partially crushed swimmeret	Missing both claws							5.4	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A5	LP3M-CS111	88	123	female	Gillnet	Missing legs and left claw	Missing one claw							6.1	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A5	LP3M-CS113	38	85	male	Gillnet	Missing right leg and both claws	< 114 mm (also missing both claws)									
LP3	LP3M	LP3M-A	LP3M-A5	LP3M-CS115	118	137	male	Gillnet	Missing left claw	Missing one claw							7.4	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A1	LP3M-CS001	222	154	male	Gillnet	Missing right claw	Missing one claw							8.9	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A2	LP3M-CS035	178	161	male	Gillnet	Missing left claw	Missing one claw							9.6	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A2	LP3M-CS037	64	112	female	Gillnet	Damaged spine, missing 2 legs	< 114 mm									
LP3	LP3M	LP3M-A	LP3M-A2	LP3M-CS038	54	90	female	Gillnet		< 114 mm									
LP3	LP3M	LP3M-A	LP3M-A3	LP3M-CS064	58	97	female	Gillnet		< 114 mm									
LP3	LP3M	LP3M-A	LP3M-A3	LP3M-CS066	82	112	male	Gillnet	Both claws, front right leg and right carapace	< 114 mm (also missing both claws)							9.9	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A3	LP3M-CS067	242	164	male	Gillnet	Missing left claw	Missing one claw							7.9	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A3	LP3M-CS068	152	143	male	Gillnet	Missing right claw, damaged right leg	Missing one claw									
LP3	LP3M	LP3M-A	LP3M-A4	LP3M-CS082	90	108	male	Gillnet	Part of left spine broken	< 114 mm							7.7	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A4	LP3M-CS084	172	140	male	Gillnet	Missing right claw	Missing one claw							8.0	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A4	LP3M-CS085	104	144	female	Gillnet	Missing left claw	Missing one claw							9.5	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A5	LP3M-CS095	272	160	male	Gillnet	Missing right claw	Missing one claw							9.2	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A5	LP3M-CS098	180	157	male	Gillnet	Missing left claw and swimmerette, 2 legs	Missing one claw							6.5	LP3-CSHT-Comp64	HT-sample done across locations using crabs missing claws
LP3	LP3M	LP3M-A	LP3M-A5	LP3M-CS101	126	127	male	Gillnet	Missing right claw, left spine damaged	Missing one claw									
LP3	LP3M	LP3M-A	LP3M-A5	LP3M-CS103	12	152	female	Gillnet	Missing left claw and 2 left legs; very soft	Missing one claw (also soft shell crab)									
LP3	LP3M	LP3M-A	LP3M-A5	LP3M-CS104	74	110	female	Gillnet											
LP3	LP3M	LP3M-A	LP3M-A5	LP3M-CS105	132	147	female	Gillnet	Missing part of right claw	Damage to crab noted									
LP4	LP4F	LP4F-B	LP4F-B2	LP4F-CS108	34	76	male	Crab Trap		< 114 mm									
LP4	LP4F	LP4F-C	LP4F-C3	LP4F-CS135	68	103	female	Crab Trap		< 114 mm									
LP4	LP4F	LP4F-C	LP4F-C3	LP4F-CS136	86	112	female	Crab Trap		< 114 mm									
LP4	LP4F	LP4F-C	LP4F-C4	LP4F-CS139	70	117	female	Crab Trap	Missing both claws and right front leg	Missing both claws							5.5		
LP4	LP4F	LP4F-B	LP4F-B4	LP4F-CS144	44	81	male	Crab Trap		< 114 mm									
LP4	LP4F	LP4F-C	LP4F-C5	LP4F-CS155	72	99	male	Crab Trap		< 114 mm									
LP4	LP4F	LP4F-C	LP4F-C5	LP4F-CS159	36	78	male	Crab Trap		< 114 mm									
LP4	LP4G	LP4G-C	LP4G-C1	LP4G-CS071	64	97	male	Crab Trap		< 114 mm									
LP4	LP4G	LP4G-C	LP4G-C3	LP4G-CS134	58	100	male	Crab Trap	Right claw detached (included)	< 114 mm									
LP4	LP4G	LP4G-A	LP4G-A3	LP4G-CS137	74	106	male	Crab Trap		< 114 mm									
LP4	LP4G	LP4G-B	LP4G-B3	LP4G-CS138	28	73	male	Crab Trap		< 114 mm									
LP4	LP4G	LP4G-A	LP4G-A5	LP4G-CS154	72	103	male	Crab Trap		< 114 mm									
LP4	LP4G	LP4G-B	LP4G-B5	LP4G-CS156	54	95	female	Crab Trap		< 114 mm									
LP4	LP4G	LP4G-A	LP4G-A9	LP4G-CS873	90	113	male	Crab Trap		< 114 mm									
LP4	LP4G	LP4G-B	LP4G-B10	LP4G-CS892	41	83	female	Crab Trap		< 114 mm									
LP4	LP4H	LP4H-B	LP4H-B1	LP4H-CS072	80	108	male	Crab Trap		< 114 mm									
LP4	LP4H	LP4H-C	LP4H-C1	LP4H-CS074	84	128	female	Crab Trap	Missing left claw	Missing one claw							6.5		
LP4	LP4H	LP4H-A	LP4H-A3	LP4H-CS125	78	120	female	Crab Trap	One missing right claw, one detached left claw	Missing one claw							5.8		
LP4	LP4H	LP4H-B	LP4H-B4	LP4H-CS143	56	90	male	Crab Trap		< 114 mm									
LP4	LP4H	LP4H-A	LP4H-A4	LP4H-CS150	26	66	male	Crab Trap		< 114 mm									
LP4	LP4H	LP4H-C	LP4H-C4	LP4H-CS151	86	111	male	Crab Trap		< 114 mm									
LP4	LP4H	LP4H-A	LP4H-A6	LP4H-CS837	68	106	male	Crab Trap		< 114 mm									
LP4	LP4H	LP4H-B	LP4H-B6	LP4H-CS838	76	105	male	Crab Trap		< 114 mm									
LP4	LP4H	LP4H-A	LP4H-A7	LP4H-CS845	118	129	male	Crab Trap	Right claw regrowing	Incomplete claw							6.6		
LP4	LP4L	LP4L-A	LP4L-A3	LP4L-CS149	70	104	male	Gillnet		< 114 mm									
LP4	LP4L	LP4L-A	LP4L-A5	LP4L-CS162	160	139	male	Gillnet	Missing right claw	Missing one claw							7.6		
LP4	LP4L	LP4L-A	LP4L-A5	LP4L-CS163	84	105	male	Gillnet		< 114 mm									
LP4	LP4L	LP4L-A	LP4L-A6	LP4L-CS824	186	146	male	Gillnet	Missing right claw	Missing one claw							8.2		
LP4	LP4O	LP4O-A	LP4O-A1	LP4O-CS128	56	96	male	Gillnet		< 114 mm									
LP4	LP4O	LP4O-A	LP4O-A1	LP4O-CS129	84	106	male	Gillnet	Right spine broken	< 114 mm									
LP4	LP4O	LP4O-A	LP4O-A2	LP4O-CS140	94	121	male	Gillnet	Detached left claw	Missing one claw							5.9		
LP4	LP4O	LP4O-A	LP4O-A7	LP4O-CS842	100	126	male	Gillnet	Missing left claw; damaged right swimmeret	Missing one claw							6.4		
LP4	LP4P	LP4P-A	LP4P-A2	LP4P-CS142	68	110	male	Gillnet		< 114 mm									
LP5	LP5E	LP5E-A	LP5E-A1	LP5E-CS123	74	108	male	Gillnet		< 114 mm									
LP5	LP5G	LP5G-A	LP5G-A1	LP5G-CS124	70	104	male	Gillnet		< 114 mm									
LP5	LP5G	LP5G-A	LP5G-A3	LP5G-CS145	76	109	male	Gillnet	Missing left claw, right swimmerette	< 114 mm (also missing one claw)									
LP5	LP5G	LP5G-A	LP5G-A3	LP5G-CS146	66	105	male	Gillnet		< 114 mm									
LP5	LP5G	LP5G-A	LP5G-A3	LP5G-CS147	68	103	male	Gillnet		< 114 mm									
LP5	LP5I	LP5I-A	LP5I-A2	LP5I-CS822	160	149	male	Gillnet	Missing right claw	Missing one claw							8.5		
LP5	LP5M	LP5M-C	LP5M-C4	LP5M-CS161	102	125	female	Crab Trap	Missing left claw	Missing one claw							6.3		
LP5	LP5M	LP5M-B	LP5M-B6	LP5M-CS868	34	84	female	Crab Trap		< 114 mm									
LP5	LP5M	LP5M-B	LP5M-B7	LP5M-CS882	72	112	male	Crab Trap	Missing right claw	< 114 mm (also missing one claw)									
LP5	LP5M	LP5M-B	LP5M-B7	LP5M-CS884	90	115	male	Crab Trap	Regrowing left claw	Incomplete claw							5.4		
LP5	LP5M	LP5M-A	LP5M-A10	LP5M-CS887	67	112	female	Crab Trap		< 114 mm									
LP5	LP5M	LP5M-A	LP5M-A10	LP5M-CS888	166	151	male	Crab Trap	Missing left claw	Missing one claw							8.7		
LP5	LP5O	LP5O-C	LP5O-C5	LP5O-CS164	50	87	male	Crab Trap		< 114 mm									
LP5	LP5O	LP5O-C	LP5O-C5	LP5O-CS165	40	81	male	Crab Trap	Missing 2 right legs	< 114 mm									
LP5	LP5O	LP5O-B	LP5O-B5	LP5O-CS167	64	102	male	Crab Trap	Missing left claw, left swimmerette, left leg	< 114 mm (also missing one claw)									
LP5	LP5O	LP5O-A	LP5O-A6	LP5O-CS827	76	105	male	Crab Trap		< 114 mm									
LP5	LP5O	LP5O-A	LP5O-A7	LP5O-CS846	36	85	female	Crab Trap		< 114 mm									
LP5	LP5O	LP5O-A	LP5O-A7	LP5O-CS847	88	112	male	Crab Trap		< 114 mm									
LP5	LP5O	LP5O-B	LP5O-B10	LP5O-CS885	96	113	male	Crab Trap		< 114 mm									
LP6	LP6F	LP6F-A	LP6F-A1	LP6F-CS182	94	112	male	Crab Trap		< 114 mm									
LP6	LP6F	LP6F-A	LP6F-A2	LP6F-CS196	78	104													

Table A2. Proposed composite samples for blue crab

Reach	Location ID	Trap ID	Trap Attempt ID	Specimen ID	Weight (g)	Length (mm)	Gender	Collection Method	Comments	Reason for exclusion from composite?	Estimated WB weight	Estimated soft tissue WB weight	Estimated Muscle/HP weight	Estimated Carcass weight	Estimated Muscle-only weight	Estimated HP-only weight	Composite ID (tissue type 1)	Composite ID (tissue type 2)	Composite Notes							
LPR6	LPR6F	LPR6F-A	LPR6F-A9	LPR6F-CS874	74	112	male	Crab Trap	Missing right claw	< 114 mm (also missing one claw)									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6F	LPR6F-A	LPR6F-A9	LPR6F-CS876	36	77	male	Crab Trap		< 114 mm									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6F	LPR6F-B	LPR6F-B9	LPR6F-CS879	58	100	female	Crab Trap	Missing left leg	< 114 mm									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6G	LPR6G-C	LPR6G-C2	LPR6G-CS190	84	110	male	Crab Trap	Missing left swimmerette	< 114 mm									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6G	LPR6G-A	LPR6G-A3	LPR6G-CS206	66	108	male	Crab Trap	Missing left claw	< 114 mm (also missing one claw)									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6G	LPR6G-C	LPR6G-C3	LPR6G-CS208	106	112	male	Crab Trap		< 114 mm									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6G	LPR6G-A	LPR6G-A4	LPR6G-CS213	182	161	male	Crab Trap	Missing right claw	Missing one claw						9.6	LPRX-CSHT-Comp65		HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6G	LPR6G-C	LPR6G-C4	LPR6G-CS239	80	109	male	Crab Trap	Missing left claw and left leg	< 114 mm (also missing one claw)									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6G	LPR6G-A	LPR6G-A5	LPR6G-CS252	84	109	male	Crab Trap		< 114 mm									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6G	LPR6G-A	LPR6G-A6	LPR6G-CS836	62	98	male	Crab Trap		< 114 mm									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6G	LPR6G-B	LPR6G-B6	LPR6G-CS839	52	93	male	Crab Trap		< 114 mm									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6G	LPR6G-A	LPR6G-A8	LPR6G-CS863	74	110	male	Crab Trap	Missing right claw	< 114 mm (also missing one claw)									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6G	LPR6G-B	LPR6G-B8	LPR6G-CS864	94	111	male	Crab Trap		< 114 mm									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6G	LPR6G-A	LPR6G-A8	LPR6G-CS869	158	146	male	Crab Trap	Missing left claw	Missing one claw						8.2	LPRX-CSHT-Comp65		HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6G	LPR6G-A	LPR6G-A9	LPR6G-CS880	68	97	male	Crab Trap		< 114 mm									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6G	LPR6G-A	LPR6G-A10	LPR6G-CS891	85	113	male	Crab Trap		< 114 mm									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6H	LPR6H-A	LPR6H-A3	LPR6H-CS215	70	105	male	Crab Trap	Missing right claw	< 114 mm (also missing one claw)									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6H	LPR6H-A	LPR6H-A4	LPR6H-CS240	94	110	male	Crab Trap	Missing left leg and left swimmerette	< 114 mm									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6H	LPR6H-B	LPR6H-B5	LPR6H-CS246	88	102	male	Crab Trap		< 114 mm									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6H	LPR6H-A	LPR6H-A7	LPR6H-CS255	74	99	male	Crab Trap	Left spine damaged	< 114 mm									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6J	LPR6J-C	LPR6J-C4	LPR6J-CS241	66	101	male	Crayfish Trap		< 114 mm									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6K	LPR6K-A	LPR6K-A2	LPR6K-CS200	54	95	male	Crayfish Trap		< 114 mm									HT-sample done across reaches and using crabs missing claws							
LPR6	LPR6N	LPR6N-A	LPR6N-A3	LPR6N-CS201	160	145	male	Gillnet	Damaged abdominal apron, missing left swimmerette	Damage to crab noted									HT-sample done across reaches and using crabs missing claws							
LPR7	LPR7F	LPR7F-C	LPR7F-C1	LPR7F-CS177	72	104	male	Crab Trap		< 114 mm									HT-sample done across reaches and using crabs missing claws							
LPR7	LPR7F	LPR7F-C	LPR7F-C1	LPR7F-CS179	86	120	female	Crab Trap	Missing right claw	Missing one claw							5.8	LPRX-CSHT-Comp65		HT-sample done across reaches and using crabs missing claws						
LPR7	LPR7F	LPR7F-A	LPR7F-A3	LPR7F-CS205	58	103	male	Crab Trap	Missing left claw	< 114 mm (also missing one claw)									HT-sample done across reaches and using crabs missing claws							
LPR7	LPR7G	LPR7G-A	LPR7G-A1	LPR7G-CS170	130	155	male	Crab Trap	Missing a leg on each side, missing both claws	Missing both claws							9.0	LPRX-CSHT-Comp65		HT-sample done across reaches and using crabs missing claws						
LPR7	LPR7G	LPR7G-C	LPR7G-C1	LPR7G-CS171	84	110	male	Crab Trap		< 114 mm									HT-sample done across reaches and using crabs missing claws							
LPR7	LPR7G	LPR7G-C	LPR7G-C1	LPR7G-CS176	128	131	male	Crab Trap	Missing left claw	Missing one claw							6.8	LPRX-CSHT-Comp65		HT-sample done across reaches and using crabs missing claws						
LPR7	LPR7G	LPR7G-A	LPR7G-A2	LPR7G-CS192	86	120	female	Crab Trap	Missing right claw	Missing one claw							5.8	LPRX-CSHT-Comp65		HT-sample done across reaches and using crabs missing claws						
LPR7	LPR7G	LPR7G-C	LPR7G-C3	LPR7G-CS217	42	98	female	Crab Trap	Missing right claw	< 114 mm (also missing one claw)									HT-sample done across reaches and using crabs missing claws							
LPR7	LPR7G	LPR7G-C	LPR7G-C5	LPR7G-CS260	164	151	male	Crab Trap	Missing right claw	Missing one claw									HT-sample done across reaches and using crabs missing claws							
LPR7	LPR7G	LPR7G-A	LPR7G-A5	LPR7G-CS263	76	99	male	Crab Trap		< 114 mm									8.7	LPRX-CSHT-Comp65		HT-sample done across reaches and using crabs missing claws				
LPR7	LPR7H	LPR7H-B	LPR7H-B2	LPR7H-CS195	106	100	male	Crab Trap	Missing right leg, damage to carapace	< 114 mm (also damage to crab)									HT-sample done across reaches and using crabs missing claws							
LPR7	LPR7H	LPR7H-A	LPR7H-A3	LPR7H-CS222	92	130	male	Crab Trap	Missing both claws	Missing both claws									6.7	LPRX-CSHT-Comp65		HT-sample done across reaches and using crabs missing claws				
LPR7	LPR7H	LPR7H-B	LPR7H-B5	LPR7H-CS248	100	109	male	Crab Trap		< 114 mm										HT-sample done across reaches and using crabs missing claws						
LPR7	LPR7H	LPR7H-B	LPR7H-B5	LPR7H-CS258	80	112	male	Crab Trap	Missing right claw	< 114 mm (also missing one claw)									HT-sample done across reaches and using crabs missing claws							
LPR7	LPR7H	LPR7H-A	LPR7H-A2	LPR7H-CS191	56	95	male	Crayfish Trap		< 114 mm										HT-sample done across reaches and using crabs missing claws						
LPR7	LPR7H	LPR7H-A	LPR7H-A4	LPR7H-CS235	86	106	male	Crayfish Trap		< 114 mm										HT-sample done across reaches and using crabs missing claws						
LPR7	LPR7H	LPR7H-B	LPR7H-B5	LPR7H-CS261	48	91	female	Crayfish Trap	Missing both claws and right swimmerette	< 114 mm (also missing both claws)									HT-sample done across reaches and using crabs missing claws							
LPR7	LPR7H	LPR7H-B	LPR7H-B4	LPR7H-CS236	48	91	female	Crayfish Trap		< 114 mm										HT-sample done across reaches and using crabs missing claws						
LPR7	LPR7K	LPR7K-C	LPR7K-C4	LPR7K-CS242	26	65	male	Crayfish Trap		< 114 mm										HT-sample done across reaches and using crabs missing claws						
LPR7	LPR7K	LPR7K-A	LPR7K-A5	LPR7K-CS251	70	102	male	Crayfish Trap		< 114 mm										HT-sample done across reaches and using crabs missing claws						
LPR7	LPR7L	LPR7L-A	LPR7L-A2	LPR7L-CS184	118	140	male	Gillnet	Missing right claw	Missing one claw									7.7	LPRX-CSHT-Comp65		HT-sample done across reaches and using crabs missing claws				
LPR7	LPR7L	LPR7L-A	LPR7L-A2	LPR7L-CS185	148	148	male	Gillnet	Missing right claw	Missing one claw										8.4	LPRX-CSHT-Comp65		HT-sample done across reaches and using crabs missing claws			
LPR7	LPR7M	LPR7M-A	LPR7M-A3	LPR7M-CS204	134	140	male	Gillnet	Missing left claw	Missing one claw										7.7	LPRX-CSHT-Comp65		HT-sample done across reaches and using crabs missing claws			
LPR8	LPR8H	LPR8H-A	LPR8H-A4	LPR8H-CS807	37	88	female	Crayfish Trap	Missing right claw, right leg	< 114 mm (also missing one claw)										HT-sample done across reaches and using crabs missing claws						
LPR8	LPR8J	LPR8J-B	LPR8J-B2	LPR8J-CS771	118	127	male	Crab Trap	Missing left claw	Missing one claw										6.5	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws			
LPR8	LPR8J	LPR8J-C	LPR8J-C3	LPR8J-CS775	180	164	male	Crab Trap	Missing left claw	Missing one claw										9.9	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws			
LPR8	LPR8J	LPR8J-B	LPR8J-B3	LPR8J-CS777	214	158	male	Crab Trap	Damaged right claw	Damage to crab noted											HT-sample done across reaches and using crabs missing claws					
LPR8	LPR8J	LPR8J-A	LPR8J-A4	LPR8J-CS804	90	119	male	Crab Trap	Both claws and right leg missing	Missing both claws										5.7	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws			
LPR8	LPR8J	LPR8J-B	LPR8J-B4	LPR8J-CS805	130	149	male	Crab Trap	Both claws and right leg missing	Missing both claws											8.5	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws		
LPR8	LPR8K	LPR8K-C	LPR8K-C1	LPR8K-CS758	56	94	male	Crab Trap		< 114 mm											HT-sample done across reaches and using crabs missing claws					
LPR8	LPR8K	LPR8K-A	LPR8K-A2	LPR8K-CS763	170	159	male	Crab Trap	Missing right claw and 2 right legs	Missing one claw										9.4	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws			
LPR8	LPR8K	LPR8K-A	LPR8K-A2	LPR8K-CS764	86	119	male	Crab Trap	Missing both claws	Missing both claws											5.7	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws		
LPR8	LPR8K	LPR8K-B	LPR8K-B2	LPR8K-CS767	88	111	male	Crab Trap		< 114 mm												HT-sample done across reaches and using crabs missing claws				
LPR8	LPR8K	LPR8K-B	LPR8K-B3	LPR8K-CS785	204	165	male	Crab Trap	Missing left claw	Missing one claw											10.0	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws		
LPR8	LPR8L	LPR8L-A	LPR8L-A5	LPR8L-CS821	88	107	male	Crab Trap		< 114 mm												HT-sample done across reaches and using crabs missing claws				
LPR8	LPR8M	LPR8M-A	LPR8M-A5	LPR8M-CS818	182	156	male	Crab Trap	Missing left claw	Missing one claw											9.1	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws		
LPR8	LPR8M	LPR8M-A	LPR8M-A5	LPR8M-CS819	81	114	male	Crab Trap	Missing both claws and left leg	Missing both claws											5.3	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws		
LPR8	LPR8M	LPR8M-B	LPR8M-B5	LPR8M-CS820	76	106	male	Crab Trap		< 114 mm												HT-sample done across reaches and using crabs missing claws				
LPR8	LPR8R	LPR8R-A	LPR8R-A3	LPR8R-CS779	192	160	male	Gillnet	Left claw missing	Missing one claw											9.5	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws		
LPR8	LPR8R	LPR8R-A	LPR8R-A3	LPR8R-CS780	144	144	male	Gillnet	Missing right claw	Missing one claw											8.0	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws		
LPR8	LPR8R	LPR8R-A	LPR8R-A3	LPR8R-CS781	82	111	male	Gillnet		< 114 mm													HT-sample done across reaches and using crabs missing claws			
LPR8	LPR8R	LPR8R-A	LPR8R-A3	LPR8R-CS782	122	145	male	Gillnet	Missing left claw, left leg	Missing one claw												8.1	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws	
LPR8	LPR8R	LPR8R-A	LPR8R-A4	LPR8R-CS809	73	114	male	Gillnet	Missing both claws and 2 right legs; damage	Missing both claws												5.3	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws	
LPR8	LPR8S	LPR8S-A	LPR8S-A1	LPR8S-CS755	166	163	male	Gillnet	Missing left claw and right swimmerette	Missing one claw												9.8	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws	
LPR8	LPR8S	LPR8S-A	LPR8S-A3	LPR8S-CS791	126	159	male	Gillnet	Missing right claw, damaged right swimmerette	Missing one claw												9.4	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws	
LPR8	LPR8S	LPR8S-A	LPR8S-A3	LPR8S-CS793	102	127	male	Gillnet	Missing right claw	Missing one claw												6.5	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws	
LPR8	LPR8U	LPR8U-A	LPR8U-A1	LPR8U-CS790	90	124	male	Boat Electrofishing	Left claw included; recently molted	Soft shell crab													HT-sample done across reaches and using crabs missing claws			
LPR8	LPR8V	LPR8V-A	LPR8V-A1	LPR8V-CS810	90	114	male	Boat Electrofishing	Missing right claw, right leg, and left leg	Missing one claw												5.3	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws	
LPR8	LPR8W	LPR8W-A	LPR8W-A1	LPR8W-CS754	54	96	male	Boat Electrofishing		< 114 mm													HT-sample done across reaches and using crabs missing claws			
LPR8	LPR8W	LPR8W-A	LPR8W-A5	LPR8W-CS815	102	133	male	Boat Electrofishing	Missing both claws	Missing both claws													HT-sample done across locations using crabs missing claws			
LPR8	LPR8Y	LPR8Y-A	LPR8Y-A1	LPR8Y-CS760	78	107	male	Backpack Electrofishing	Left claw missing	< 114 mm (also missing one claw)													7.0	LPR8-CSHT-Comp66		HT-sample done across locations using crabs missing claws
LPR8	LPR8Y	LPR8Y-A	LPR8Y-A1	LPR8Y-CS761	52	94	male	Backpack Electrofishing		< 114 mm														HT-sample done across locations using crabs missing claws		
LPR8	LPR8Y	LPR8Y-A	LPR8Y-A2	LPR8Y-CS773	90	113																				

Table A3. Coordinates of Sampling Locations where Specimens Caught

Trap ID	Collection Method	Final Easting	Final Northing	Number of Specimens		
				Specimens for Community Survey	Fish/Decapod Retained for Potential Chemistry	Fish Retained for Heath Assessment
LPR1A-A	Minnow Trap	598862	685983	3		
LPR1A-B	Minnow Trap	598921	685982	4		
LPR1A-C	Minnow Trap	598972	685982	5		
LPR1AA-A	Minnow Trap	598775	686320	5	6	
LPR1AA-B	Minnow Trap	598813	686336	6	7	
LPR1AA-C	Minnow Trap	598850	686350	7	2	
LPR1B-A	Minnow Trap	598145	686254	2		1
LPR1B-B	Minnow Trap	598185	686213	1		
LPR1B-C	Minnow Trap	598209	686193	3		
LPR1BB-A	Minnow Trap	598257	686353	2	3	
LPR1BB-B	Minnow Trap	598312	686378	2	2	
LPR1BB-C	Minnow Trap	598338	686356	3		
LPR1D-A	Minnow Trap	597403	690438	3	18	
LPR1D-B	Minnow Trap	597400	690423	4		
LPR1D-C	Minnow Trap	597396	690412	2		1
LPR1G-A	Trotline	597299	689861	2	4	
LPR1G-B	Trotline	597272	689789	2	1	
LPR1G-C	Trotline	597285	689722	5	1	
LPR1H-A	Trotline	596678	687147	2	1	
LPR1H-B	Trotline	596643	687098	1		
LPR1H-C	Trotline	596611	687015	1	1	
LPR1I-A	Gillnet	597827	691568	9	60	1
LPR1J-A	Gillnet	597398	688339	10	87	3
LPR1K-A	Gillnet	596645	685592	12	88	2
LPR1L-A	Crab Trap	598999	685962	2	12	
LPR1L-B	Crab Trap	598956	685956	2	9	
LPR1M-A	Crab Trap	598210	686152	2	9	
LPR1M-B	Crab Trap	598174	686182	1	8	
LPR1M-C	Crab Trap	598135	686244		9	
LPR1N-A	Crab Trap	597395	690389		4	
LPR1N-B	Crab Trap	597387	690368		9	
LPR1N-C	Crab Trap	597378	690344		2	
LPR1O-A	Eel Trap	598904	685938	7		
LPR1O-B	Eel Trap	598990	685941	9	1	3
LPR1O-C	Eel Trap	599042	685966	7		
LPR1P-A	Eel Trap	598131	686206	5		
LPR1P-B	Eel Trap	598165	686155	4	1	
LPR1P-C	Eel Trap	598236	686094	9		
LPR1Q-A	Eel Trap	597397	690396	7	6	1
LPR1Q-B	Eel Trap	597383	690365		43	
LPR1R-A	Dip Net	598449	686449		1	
LPR2B-A	Minnow Trap	596928	695100	3	5	
LPR2B-B	Minnow Trap	596925	695115	1	63	
LPR2B-C	Minnow Trap	596907	695131	2	11	
LPR2C-A	Minnow Trap	594657	695226	3	2	1
LPR2C-B	Minnow Trap	594680	695222	7	2	
LPR2C-C	Minnow Trap	594709	695217	5		
LPR2E-A	Minnow Trap	590126	692885	6	1	1
LPR2E-B	Minnow Trap	590172	692915	10	1	
LPR2E-C	Minnow Trap	590211	692944	9	1	
LPR2F-A	Trotline	590324	692663		1	
LPR2F-B	Trotline	590394	692681	1		
LPR2G-A	Trotline	592218	695220	2	1	
LPR2H-B	Trotline	596999	695616	2		
LPR2H-C	Trotline	597072	695600	1	1	
LPR2I-A	Gillnet	590155	692581	8	30	
LPR2J-A	Gillnet	594631	695595	5	34	
LPR2K-A	Gillnet	597724	695166	12	77	5
LPR2L-A	Crab Trap	596867	695157		7	
LPR2L-B	Crab Trap	596860	695179		1	
LPR2L-C	Crab Trap	596847	695184		6	
LPR2M-A	Crab Trap	594563	695228	1	2	
LPR2M-B	Crab Trap	594545	695240		10	
LPR2M-C	Crab Trap	594496	695245		5	

Table A3. Coordinates of Sampling Locations where Specimens Caught

Trap ID	Collection Method	Final Easting	Final Northing	Number of Specimens		
				Specimens for Community Survey	Fish/Decapod Retained for Potential Chemistry	Fish Retained for Heath Assessment
LPR2N-A	Crab Trap	590310	692957	2	6	
LPR2N-B	Crab Trap	590365	693000		6	
LPR2N-C	Crab Trap	590422	693046		9	
LPR2O-A	Eel Trap	596832	695194	5	1	
LPR2O-B	Eel Trap	596837	695196	8	3	1
LPR2O-C	Eel Trap	596813	695207	5	4	
LPR2P-A	Eel Trap	594464	695224	8		
LPR2P-B	Eel Trap	594418	695228	9		
LPR2P-C	Eel Trap	594383	695204	8		
LPR2Q-A	Eel Trap	590476	693104	8		
LPR2Q-B	Eel Trap	590510	693154	9		
LPR2Q-C	Eel Trap	590548	693209	8		
LPR2R-A	Dip Net	596083	695248	1		3
LPR3A-A	Minnow Trap	588537	692671	1	1	
LPR3A-B	Minnow Trap	588561	692644	1	2	
LPR3A-C	Minnow Trap	588560	692660		3	
LPR3B-A	Minnow Trap	587086	692516	2		
LPR3B-B	Minnow Trap	587129	692517	1	3	
LPR3C-A	Minnow Trap	585170	694440	2		
LPR3C-C	Minnow Trap	585157	694491	2	3	
LPR3F-A	Crab Trap	584943	698212		4	
LPR3F-B	Crab Trap	584935	698184	2	4	
LPR3F-C	Crab Trap	584937	698223	2	3	
LPR3G-A	Crab Trap	584687	696034		4	
LPR3G-B	Crab Trap	584695	696006		5	
LPR3G-C	Crab Trap	584706	695966		6	
LPR3H-A	Crab Trap	585660	694238		6	
LPR3H-B	Crab Trap	585655	694258		2	
LPR3H-C	Crab Trap	585642	694274		2	
LPR3I-A	Eel Trap	585101	694752	2	2	
LPR3I-B	Eel Trap	585107	694727	1	2	
LPR3I-C	Eel Trap	585113	694700	3		
LPR3J-A	Eel Trap	585077	695935		1	
LPR3J-B	Eel Trap	585072	695956		3	
LPR3J-C	Eel Trap	585057	695993	1	2	
LPR3K-A	Eel Trap	584668	698342	1	3	
LPR3K-B	Eel Trap	584666	698315		2	
LPR3K-C	Eel Trap	584662	698283	1	5	
LPR3L-A	Trotline	585034	698912		2	
LPR3L-B	Trotline	585019	698886		3	
LPR3L-C	Trotline	584991	698910	2	3	
LPR3M-A	Gillnet	584798	697881	5	41	1
LPR3N-A	Gillnet	584921	695554	8	30	
LPR3O-A	Gillnet	588368	692495	14	90	7
LPR3P-A	Trotline	588105	692248		1	
LPR3P-B	Trotline	588111	692223	1	2	
LPR3P-C	Trotline	588161	692285		2	
LPR3Q-A	Trotline	585049	694994		1	
LPR3Q-B	Trotline	585068	694984		3	
LPR3Q-C	Trotline	585084	694997		1	
LPR4C-B	Minnow Trap	586719	704097		1	
LPR4D-A	Minnow Trap	587489	705720	2		
LPR4D-B	Minnow Trap	587496	705790		1	
LPR4D-C	Minnow Trap	587572	705839	2		
LPR4F-A	Crab Trap	587283	705973		1	
LPR4F-B	Crab Trap	587313	706034		3	
LPR4F-C	Crab Trap	587352	706120	1	5	
LPR4G-A	Crab Trap	586996	704092		4	
LPR4G-B	Crab Trap	587032	704128		7	
LPR4G-C	Crab Trap	587029	704104	1	2	
LPR4H-A	Crab Trap	585274	700807		6	
LPR4H-B	Crab Trap	585272	700811		4	
LPR4H-C	Crab Trap	585266	700764		3	
LPR4I-B	Eel Trap	585249	700695	1		

Table A3. Coordinates of Sampling Locations where Specimens Caught

Trap ID	Collection Method	Final Easting	Final Northing	Number of Specimens		
				Specimens for Community Survey	Fish/Decapod Retained for Potential Chemistry	Fish Retained for Heath Assessment
LPR4I-C	Eel Trap	585243	700671		1	
LPR4J-B	Eel Trap	586874	703850	1		
LPR4J-C	Eel Trap	586871	703813	1	1	
LPR4L-A	Gillnet	585166	700324	5	15	
LPR4M-A	Trotline	585151	701600	2	1	
LPR4M-B	Trotline	585118	701504	1	3	
LPR4M-C	Trotline	585181	701661		2	
LPR4N-A	Trotline	587156	704379		3	
LPR4N-B	Trotline	587082	704273	1		
LPR4N-C	Trotline	587180	704463	2	2	
LPR4O-A	Gillnet	587268	705741	4	10	
LPR4P-A	Gillnet	588651	707444	2	11	
LPR4Q-A	Trotline	589249	708215		3	
LPR4Q-C	Trotline	589188	708184	1	1	
LPR4R-A	Boat Electrofishing	587094	705442	4	8	
LPR4S-A	Boat Electrofishing	588168	706783	2	18	2
LPR4T-A	Boat Electrofishing	589042	707878	2	18	
LPR5A-A	Minnow Trap	589448	709268		5	1
LPR5A-B	Minnow Trap	589436	709275			2
LPR5A-C	Minnow Trap	589416	709238		2	
LPR5B-B	Minnow Trap	590234	712386		1	1
LPR5B-C	Minnow Trap	590244	712406		2	
LPR5C-C	Minnow Trap	592011	717746		1	
LPR5E-A	Gillnet	589795	711734	3	16	
LPR5F-A	Trotline	589948	711839		2	
LPR5F-B	Trotline	589880	711711	3	3	
LPR5F-C	Trotline	589980	711904	1	2	
LPR5G-A	Gillnet	591330	714199	5	7	
LPR5H-A	Trotline	591608	715061	1	2	
LPR5H-B	Trotline	591553	714981		2	
LPR5H-C	Trotline	591631	715124		3	
LPR5I-A	Gillnet	591812	718376	2	6	
LPR5J-A	Trotline	592097	717356		2	
LPR5J-B	Trotline	592143	717261		2	
LPR5J-C	Trotline	592082	717440	2	2	
LPR5K-B	Crab Trap	589628	708970	1	1	
LPR5L-B	Eel Trap	589629	709115		1	
LPR5M-A	Crab Trap	590284	712972		4	
LPR5M-B	Crab Trap	590294	712998		6	
LPR5M-C	Crab Trap	590300	713002		4	
LPR5O-A	Crab Trap	591814	717645		9	
LPR5O-B	Crab Trap	591812	717668		10	
LPR5O-C	Crab Trap	591810	717693		3	
LPR5P-A	Eel Trap	591788	717782			1
LPR5P-B	Eel Trap	591778	717795	1	1	
LPR5Q-A	Boat Electrofishing	592183	717297	4	45	1
LPR5R-A	Boat Electrofishing	592455	716313	2	31	2
LPR5S-A	Boat Electrofishing	589702	711831	6	18	
LPR5T-A	Boat Electrofishing	589609	709404	3	25	1
LPR6A-C	Minnow Trap	592584	722334	1		
LPR6B-B	Minnow Trap	593382	723296		1	
LPR6B-C	Minnow Trap	593417	723324	1		
LPR6C-A	Minnow Trap	594226	723825		1	
LPR6C-C	Minnow Trap	594285	723846			1
LPR6D-C	Minnow Trap	595166	724121	1		
LPR6F-A	Crab Trap	592579	722367	1	20	
LPR6F-B	Crab Trap	592587	722410	1	7	
LPR6F-C	Crab Trap	592594	722454		1	
LPR6G-A	Crab Trap	593235	723579		14	
LPR6G-B	Crab Trap	593267	723582		3	
LPR6G-C	Crab Trap	593262	723569		9	
LPR6H-A	Crab Trap	595232	724124		5	
LPR6H-B	Crab Trap	595283	724160	1	6	1
LPR6I-A	Crayfish Trap	592606	722494			1

Table A3. Coordinates of Sampling Locations where Specimens Caught

Trap ID	Collection Method	Final Easting	Final Northing	Number of Specimens		
				Specimens for Community Survey	Fish/Decapod Retained for Potential Chemistry	Fish Retained for Heath Assessment
LPR6I-B	Crayfish Trap	592600	722532	1	2	
LPR6J-A	Crayfish Trap	593319	723608		1	
LPR6J-C	Crayfish Trap	593402	723629		1	1
LPR6K-A	Crayfish Trap	595459	724229		1	
LPR6L-A	Gillnet	596201	724678	2	19	3
LPR6M-A	Gillnet	594051	723740	1	11	1
LPR6N-A	Gillnet	592325	722258	9	24	2
LPR6O-A	Trotline	596688	725981		1	
LPR6O-B	Trotline	596678	725967	1	1	
LPR6O-C	Trotline	596678	725904			1
LPR6P-A	Trotline	595771	724220	1	5	
LPR6P-B	Trotline	595841	724267	1		
LPR6P-C	Trotline	595891	724319		1	1
LPR6Q-A	Trotline	592194	721861		1	1
LPR6Q-B	Trotline	592201	721923	1	2	
LPR6R-A	Trotline	593804	723468		1	
LPR6R-B	Trotline	593857	723476		2	
LPR6R-C	Trotline	593899	723497	1	2	
LPR6S-A	Trotline	592481	722901	1	3	
LPR6S-B	Trotline	592495	722923		1	
LPR6S-C	Trotline	592503	722956	1	1	
LPR6V-A	Boat Electrofishing	592459	721585		1	
LPR7A-A	Minnow Trap	596648	728976	1		
LPR7A-C	Minnow Trap	596769	728955	2		
LPR7B-B	Minnow Trap	596736	729280	1		
LPR7C-A	Minnow Trap	596686	733029	3		
LPR7C-B	Minnow Trap	596697	733065	2	1	
LPR7D-B	Minnow Trap	597441	734864		1	
LPR7E-A	Minnow Trap	597316	735371	1	1	
LPR7E-C	Minnow Trap	597308	735334	1	1	
LPR7F-A	Crab Trap	597445	734965		6	
LPR7F-B	Crab Trap	597453	734999		1	
LPR7F-C	Crab Trap	597452	735017		8	1
LPR7G-A	Crab Trap	597342	735289		9	
LPR7G-B	Crab Trap	597342	735269		5	
LPR7G-C	Crab Trap	597339	735250		13	
LPR7H-A	Crab Trap	596716	728849		2	1
LPR7H-B	Crab Trap	596780	728831		7	
LPR7H-C	Crab Trap	596737	728804		1	
LPR7I-A	Crayfish Trap	597472	735056		2	
LPR7I-B	Crayfish Trap	597479	735092		1	
LPR7I-C	Crayfish Trap	597496	735115		1	
LPR7J-B	Crayfish Trap	597335	735453		2	
LPR7J-C	Crayfish Trap	597338	735473		1	
LPR7K-A	Crayfish Trap	596730	728805		2	
LPR7K-C	Crayfish Trap	596772	728710		2	
LPR7L-A	Gillnet	597481	735489		37	1
LPR7M-A	Gillnet	596952	728472	4	21	
LPR7N-A	Trotline	597320	735075	3	1	
LPR7N-B	Trotline	597329	735030		1	
LPR7N-C	Trotline	597348	735158	1		
LPR7O-A	Trotline	596946	733355		1	
LPR7O-C	Trotline	596980	733527		1	
LPR7P-B	Trotline	596286	731502		1	
LPR7P-C	Trotline	596325	731594		1	
LPR7Q-A	Trotline	596587	729111		1	
LPR7Q-C	Trotline	596531	729221		2	
LPR7R-A	Boat Electrofishing	597139	734602			1
LPR7U-A	Boat Electrofishing	596913	728915			2
LPR8A-A	Minnow Trap	597559	737849	1		
LPR8A-C	Minnow Trap	597558	737808		1	
LPR8D-A	Minnow Trap	599182	741745		2	
LPR8D-C	Minnow Trap	599151	741744	1		
LPR8F-A	Minnow Trap	596908	745770	2	1	

Table A3. Coordinates of Sampling Locations where Specimens Caught

Trap ID	Collection Method	Final Easting	Final Northing	Number of Specimens		
				Specimens for Community Survey	Fish/Decapod Retained for Potential Chemistry	Fish Retained for Heath Assessment
LPR8F-B	Minnow Trap	596950	745766	1		
LPR8G-B	Crayfish Trap	599034	741833	1		
LPR8H-A	Crayfish Trap	597535	737793		2	
LPR8H-B	Crayfish Trap	597536	737784	1		
LPR8I-B	Crayfish Trap	597810	744583	1		
LPR8J-A	Crab Trap	599110	741769		1	
LPR8J-B	Crab Trap	599098	741776		5	
LPR8J-C	Crab Trap	599083	741795		2	
LPR8K-A	Crab Trap	597509	737734	1	4	
LPR8K-B	Crab Trap	597504	737722		11	
LPR8K-C	Crab Trap	597505	737709		4	
LPR8L-A	Crab Trap	597798	744553		2	
LPR8M-A	Crab Trap	597014	745965	1	2	
LPR8M-B	Crab Trap	597003	745977	1	1	
LPR8P-A	Trotline	600701	738021	1		
LPR8P-B	Trotline	600758	737920	1		
LPR8P-C	Trotline	600715	737892	2		
LPR8Q-C	Trotline	599236	737597	1	1	
LPR8R-A	Gillnet	600828	738621	6	21	2
LPR8S-A	Gillnet	597833	738329	1	33	
LPR8T-C	Crayfish Trap	596976	745970	2		
LPR8U-A	Boat Electrofishing	600528	737366	12	27	2
LPR8V-A	Boat Electrofishing	599755	740370	8	77	3
LPR8W-A	Boat Electrofishing	599277	741575	10	23	5
LPR8X-A	Boat Electrofishing	599354	741619	8	26	4
LPR8Y-A	Backpack Electrofishing	596961	746132	9	111	1
LPR8Z-A	Backpack Electrofishing	595612	746920	7	392	5



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MEMORANDUM

To: Robert Law, de maximis, inc.
From: Shannon Katka, Mike Johns, Windward Environmental LLC
Subject: Revised Sample Analysis Plan for Catfish/Bullhead, Carp, Bass, White Sucker, and Northern Pike Tissue for the Lower Passaic River Restoration Project (Revised Fish Sample Analysis Plan, Part 1)
Date: May 21, 2010

This memorandum summarizes compositing considerations and proposes a revised plan for analyzing tissues collected during the late summer/early fall 2009 in the Lower Passaic River Study Area (LPRSA) in support of a human health risk assessment (HHRA) and an ecological risk assessment (ERA). The proposed sample analysis plan and recommendations are based on the discussions between the US Environmental Protection Agency (USEPA) and the Cooperating Parties Group (CPG), the *Quality Assurance Project Plan for the Fish and Decapod Crustacean Tissue Collection for Chemical Analysis and Fish Community Survey* (Windward 2009a), hereafter referred to as the Fish/Decapod QAPP, and per the January 20, 2010, fish/decapod tissue sampling meeting between CPG and USEPA.

The following presents the revised sample analysis plan for all fish, with the exception of American eel and white perch, based on the tissue collected during the late summer/early fall 2009 sampling effort. A revised sample analysis plan for American eel and white perch will be provided in a subsequent memo.

The following revisions were made to the November 6, 2009, fish analysis proposal (Windward 2009b) based on the discussions conducted during the January 20, 2010, meeting and USEPA March 25, 2010, comments (USEPA 2010) to this memorandum dated February 12, 2010:

- ◆ **Analysis samples** – These species will be analyzed and evaluated in the risk assessments:
 - ◆ **White catfish/channel catfish** – Proposed samples for white catfish and channel catfish were changed from composite samples of multiple fish to individual samples of fish that were greater than 450 g.¹ One additional white catfish weighing less than 450 g will also be analyzed per USEPA (USEPA 2010). Fillet and carcass samples will be analyzed. These catfish data may be combined for evaluation in the risk assessments, provided their life histories are sufficiently similar, as suggested by a preliminary literature search, and following consultation with USEPA. Both are omnivorous benthic feeders with a varied diet that can include small fish, crustaceans, and other invertebrates, prefer habitats of slow moving water and mud-bottomed areas and have long lifespans (Ashley et al. 2004; Maryland DNR 2007; Werner 2004).
 - ◆ **Carp** – The number of carp samples for use in the risk assessments was reduced from 26 to 12. Carp samples for the HHRA (as fillet samples) and for the ERA (as whole-body samples) from separate fish will be analyzed (i.e., no carcass samples will be analyzed).
 - ◆ **Brown bullhead** – No individual brown bullhead were greater than 450 g; therefore, no fillet samples for brown bullhead samples have been proposed. Instead, six individual brown bullhead samples are proposed for whole body analysis. These data will be evaluated in the ERA.
 - ◆ **White sucker** – Five samples of each fillet and five carcass tissue have been added based on five individual white suckers per USEPA, although white sucker were not identified as a target or alternative receptor in the Fish/Decapod QAPP (Windward 2009a).
 - ◆ **Bass and pike** – Three largemouth bass samples of each fillet and carcass tissue, three smallmouth bass samples of each fillet and carcass tissue, and one northern pike sample of each fillet and carcass tissue have been proposed.
- ◆ **QC samples** – Samples that are targeted for quality control (QC) analysis have been identified in an appendix summary table (Table A1).

¹ An individual fish weight greater than 450 g was selected based on the assumption that fish fillet mass makes up one-third (33.3%) of whole-body fish mass. A whole-body sample mass of 450 g is therefore needed to achieve an estimated fillet mass that meets minimum mass requirements (i.e., 150 g). Verification of this assumption will be made at the laboratory once homogenization of samples begins.

This analysis plan will provide a limited amount of data (i.e., small sample sizes) for the following fish species: brown bullhead, smallmouth bass, largemouth bass, northern pike, and white sucker. Details on how these data will be used in the risk assessments are still under discussion between USEPA and CPG. During the January 20, 2010, meeting, USEPA requested that if additional bass are caught during the spring or summer 2010 collection efforts, the CPG consider keeping these fish for analysis to expand the limited bass dataset, especially because they are target species per the Fish/Decapod QAPP (Windward 2009a). The CPG agrees to consider this request during 2010 fish tissue sampling.

1 OVERALL FISH SAMPLE ANALYSIS PLAN

The Fish/Decapod QAPP (Windward 2009a) defined the estuarine zone as the part of the LPRSA between River Mile (RM) 0 and RM 10 and the freshwater zone as the part of the LPRSA area above RM 10 (from RM 10 to RM 17.4). Five 2-mile reaches were defined in the estuarine zone; two 2-mile reaches and one 3.4-mile reach were defined in the freshwater zone (Table 1).

Table 1. Summary of reach designations per zone

Zone	Reach	RM
Estuarine zone (RM 0 to RM 10)	1	RM 0 – RM 2
	2	RM 2 – RM 4
	3	RM 4 – RM 6
	4	RM 6 – RM 8
	5	RM 8 – RM 10
Freshwater zone (RM 10 to RM 17.4)	6	RM 10 – RM 12
	7	RM 12 – RM 14
	8	RM 14 – RM 17.4

RM – river mile

Fish target species were identified in the Fish/Decapod QAPP (Windward 2009a) and are presented in Table 2. In addition, the following alternative fish species were also identified in the Fish/Decapod QAPP: summer flounder, white catfish, Atlantic tomcod, northern pike, and carp. All eligible target and alternative species that were caught during sampling were retained for possible chemical analysis.² The following fish were also retained during sampling: Atlantic silverside, gizzard shad, white sucker, smallmouth bass, striped bass, and rock bass.

² Per the Fish/Decapod QAPP (Windward 2009a), fish that underwent a health assessment analysis were not retained for chemical analysis.

Table 2. Target and alternative fish species by feeding guild and recommendations for chemical analysis

Feeding Guild	Target (and Alternative) Species Identified in the Fish/Decapod QAPP		Actual Species Caught and Recommended for Analysis	
	Estuarine Zone ^a	Freshwater Zone ^b	Estuarine Zone ^a	Freshwater Zone ^b
Benthic omnivore	mummichog	darter or killifish species	none (data gap) ^c	none (data gap) ^c
Invertivore/omnivore	white perch (Atlantic tomcod)	channel catfish/ brown bullhead (white catfish, carp)	white perch, brown bullhead, channel catfish, white catfish	white perch, brown bullhead, channel catfish, white catfish
Piscivore	American eel (summer flounder)	largemouth bass (northern pike)	American eel, largemouth bass, smallmouth bass, and northern pike	American eel, largemouth bass, smallmouth bass, and northern pike

^a The estuarine zone is located between RM 0 and RM 10.

^b The freshwater zone is located between RM 10 and RM 17.4.

^c These data are proposed for collection in spring 2010 as mummichog were not abundant in the LPRSA during the late summer/early fall 2009 sampling effort.

In response to USEPA's comments (Vaughn 2010) on the CPG's November 6, 2009, proposed fish analysis plan (Windward 2009b), a number of fish (i.e., channel catfish, white catfish, white sucker, brown bullhead, and largemouth bass, and northern pike) that are greater than 450 g are proposed for individual analysis.³ There are a few exceptions in which fish less than 450 g are proposed for analysis as individual samples:

- ◆ One white sucker sample (Ind023) has a whole-body mass of 434 g (and an estimated fillet mass of 145 g).
- ◆ Two largemouth bass samples (Ind009 and Ind002) each have a whole-body mass of 440 and 422 g, respectively (and estimated fillet mass of 147 and 141 g, respectively).
- ◆ One white catfish samples (Ind006) each has a whole-body mass of 422 g (and estimated fillet mass of 141 g).
- ◆ All six brown bullhead samples are less than 450 g; however, no fillet samples are proposed for this species. These samples will be analyzed as whole body samples, and all six fish are greater than 150 g and expected to have sufficient mass for whole body analysis.

If the actual mass of any sample measured in the laboratory during the composite preparation is less than the target mass of 150 g, a discussion on analyte priority between USEPA and CPG will take place prior to any analysis of that sample.

Composite samples are proposed for other fish species (i.e., largemouth bass and smallmouth bass) because individual body mass is insufficient for individual samples.

³ Fish fillet mass and carcass mass were estimated assuming that the fillet makes up one-third (33.3%) of the total body weight.

The compositing criteria were outlined in the Fish/Decapod QAPP (Windward 2009a). The following is a summary of compositing criteria in order of priority:

1. Composite by species.
2. Require a target tissue mass of 150 g (pre-homogenization) for analysis of all analyte groups. Fish fillet mass and carcass mass were estimated assuming that the fillet makes up one-third (33.3%) of the total body weight and the carcass makes up the remaining mass.
3. Include a minimum of three specimens per composite sample.
4. Composite specimens of similar size based on length.⁴
5. Consider the following in concert:
 - ◆ Composite by location when possible
 - ◆ Composite specimens that meet minimum target length

All compositing criteria were considered on a species-specific basis. Exceptions to the criteria include the following:

- ◆ For one largemouth bass composite sample (Comp01) and two smallmouth bass composite samples (Comp01 and Comp02), a sample size of only two fish is proposed to maximize the number of possible samples.
- ◆ One smallmouth bass fillet composite sample has an estimated mass that is slightly less than the targeted 150 g (estimated fillet mass is 136 g). Because estimated masses may be different than actual masses measured in the laboratory during the composite preparation, the analytical list of any sample that is found to have actual mass less than the target mass of 150 g will be discussed between USEPA and CPG prior to any analysis of that sample.
- ◆ Some of the proposed composites cannot be composited by location. One largemouth bass (Comp01) and two smallmouth bass samples (Comp02 and Comp03) will have to be composited across multiple sampling locations within the same reach.

The proposed sample analysis plan is presented in Table 3. The number of samples proposed in the Fish/Decapod QAPP (Windward 2009a) is presented in Column 4, Target No. of Samples, and the number of samples proposed based on the actual catch is presented in Column 5, Proposed No. of Samples.

⁴ In a call on September 9, 2009, USEPA and CPG agreed that fish and decapods are of similar size when the lengths of all specimens in a composite are within 25% of the mean length for that composite.

Table 3. Summary of proposed tissue samples

Feeding Guild	Target or Alternative Species	Type of Sample	Target No. of Samples	Proposed No. of Samples	Proposed Sample Type
Benthic omnivore – forage fish	mummichog	whole body	39	0 ^a	none (data gap)
	darer or killifish species	whole body	43	0 ^a	none (data gap)
Invertivore/ Omnivore	white perch	skin-on fillet	24	TBD ^b	TBD ^b
		carcass	24	TBD ^b	TBD ^b
	channel catfish/brown bullhead	skinless fillet	26	11	individual ^c
		carcass with skin	26	11	individual ^c
		whole body	0	6	individual ^c
	white catfish ^d	skinless fillet	0	19	individual
		carcass with skin	0	19	individual
	common carp ^d	skin-on fillet	0	12	individual
		whole body	0	12	individual
	white sucker ^e	skin-on fillet	0	5	individual
		carcass	0	5	individual
Piscivore	American eel	skinless fillet	24	TBD ^b	TBD ^b
		carcass with skin	24	TBD ^b	TBD ^b
	largemouth bass	skin-on fillet	26	3	composite (n = 1); individual (n = 2)
		carcass	26	3	composite (n = 1); individual (n = 2)
	smallmouth bass ^d	skin-on fillet	0	3	composite
		carcass	0	3	composite
	northern pike	skin-on fillet	0	1	individual
		carcass	0	1	individual

^a Limited numbers of these species were collected in the late summer/early fall 2009 sampling effort; therefore, these species will be targeted for re-collection in spring 2010. Fish collected during the late summer/early fall 2009 effort have been retained (frozen) and may be analyzed at a later date pending the 2010 catch results.

^b The sample analysis plan for white perch and American eel will be presented in a subsequent memorandum.

^c Channel catfish will be analyzed as fillet and carcass samples, and brown bullhead will be analyzed as whole body samples.

^d White catfish and carp were identified as an alternative species for collection in the Fish/Decapod QAPP (Windward 2009a).

^e White sucker was not identified as a target or alternative species in the Fish/Decapod QAPP (Windward 2009a); however, this species will be analyzed per USEPA (Vaughn 2010).

TBD – to be determined

Additional details on the proposed number of composite or individual specimen samples (by feeding guild) are presented in Sections 2 through 4.

Figures 1 through 4 present the locations of the fish specimens proposed for analysis. Table A1 in Attachment A summarizes the proposed fish samples for analysis (and tissue type) and sampling locations based on assigned sample IDs. Attachment A also presents the details, including sample IDs, of all individual fish identified for chemistry analysis (Tables A2 through A4) and the specimen sampling locations (Table A5).

As specified in the Fish/Decapod QAPP (Windward 2009a), in order to conduct matrix-specific quality control (QC), 1 in every 20 samples per matrix type requires a mass of 450 g (this includes both mass for the matrix QC and the analytical sample). Matrix type is defined as both the tissue type and feeding guild (e.g., fillet samples for piscivorous fish). The proposed sample analysis plan is expected to provide sufficient mass to meet the matrix QC requirement based on the estimated mass per sample. In addition to QC samples, additional tissue mass is needed to satisfy USEPA split sample requests. Table A1 (in Appendix A) provides the estimated sample mass for all composites and tissue types and the samples that will be selected to meet QC requirements, which can be used by USEPA to determine possible candidate samples for splits under this proposed sampling design. The selection of USEPA split samples should follow the selection of QC samples to ensure that sufficient mass is available for matrix QC as specified in the Fish/Decapod QAPP (Windward 2009a).

All specimens collected and retained during the late summer/early fall 2009 sampling effort that are not proposed for analysis at this time will be retained for possible future analysis up to the specified holding time for tissue samples (1 year) per the USEPA-approved Fish/Decapod QAPP (Windward 2009a). The CPG and USEPA are discussing the fate of specimens not analyzed prior to the end of the 1-year holding time and will develop a plan for the management of these specimens prior to the expiration of the 1-year deadline.

2 BENTHIC OMNIVORE FORAGE FISH: MUMMICHOG AND DARTER/KILLIFISH

Target Species/Tissue Type

- ◆ Estuarine zone: mummichog (whole body)
- ◆ Freshwater zone: darter or killifish (whole body)

Catch Summary

Very few mummichog and darter or killifish were caught during the late summer/early fall 2009 field effort. Only one location in Reach 2, at approximately RM 2.4, provided sufficient mummichog tissue for a composite sample (31 individuals totaling 150 g of tissue).

Analysis Options

Because one sample is not representative of the relationship between sediment and tissue throughout the river, USEPA and CPG jointly decided to forego the analysis of the 2009 mummichog specimens collected and to re-attempt mummichog collection during the planned spring 2010 event. All mummichog collected in 2009 will be retained for possible future analysis.

3 INVERTIVORE/OMNIVORE: BULLHEAD/CATFISH

Target Species/Tissue Type

- ◆ Freshwater zone: brown bullhead and channel catfish⁵ (skinless fillet and carcass with skin)
- ◆ Target length was 8 in. (203 mm) for brown bullhead and 12 in. (305 mm) for channel catfish (legal limit for channel catfish). Inasmuch as there is no legal minimum catch size for brown bullhead, the target size of 8 in. (203 mm) is based on an assumed meaningful target size for human consumption.

Catch Summary

- ◆ While brown bullhead and channel catfish were the targeted invertivore/omnivore species in the freshwater zone, some individuals of both species were collected in the estuarine zone:
 - ◆ Brown bullhead were caught in Reaches 3, 4, 6, and 7. All brown bullhead meet the target length of 8 in. (203 mm).
 - ◆ Channel catfish were caught in Reaches 5, 6, 7, and 8. Twelve of the fourteen channel catfish meet the target length of 12 in. (305 mm), eleven of which are of sufficient mass (> 450 g) to be analyzed as individual samples.
- ◆ White catfish (alternative species) were also caught in both the freshwater and estuarine zone (in Reaches 2 through 8). Eighteen of the white catfish are of sufficient mass (> 450 g) to be analyzed as individual samples.

⁵ The alternative freshwater invertivore/omnivore species were common carp and white catfish. White sucker were not identified as a target or alternative receptor in the Fish/Decapod QAPP (Windward 2009a); however, analysis of this species was requested per USEPA (Vaughn 2010).

- ◆ Common carp (alternative species) were caught in Reaches 3 through 8, all of which are of sufficient mass (> 450 g) to be individual samples.
- ◆ White sucker were caught in Reaches 4, 5, and 8. Seventeen of the white sucker are of sufficient mass (> 450 g) to be analyzed as individual samples.

Analysis Options

- ◆ The analysis of 24 individual specimens of common carp that are evenly distributed throughout the reaches is proposed; 2 fillet and 2 whole-body samples per reach are proposed, for a total of 12 fillet and 12 whole-body samples. Carp samples for the HHRA (as fillet samples) and for the ERA (as whole-body samples) from separate fish will be analyzed (i.e., no carcass samples will be analyzed).
- ◆ Eighteen individual channel catfish and eleven white catfish were selected for sample analysis because these fish were all greater than 450 g. One additional white catfish weighing less than 450 g will also be analyzed per USEPA (USEPA 2010). Fillet and carcass samples will be made from individual fish. These catfish data may be combined for evaluation in the risk assessments, provided their life histories are sufficiently similar, as suggested by a preliminary literature search, and following consultation with USEPA. Both are omnivorous benthic feeders with a varied diet that can include small fish, crustaceans, and other invertebrates, prefer habitats of slow moving water and mud-bottomed areas and have long lifespans (Ashley et al. 2004; Maryland DNR 2007; Werner 2004).
- ◆ No individual brown bullhead were greater than 450 g; therefore, no fillet brown bullhead samples have been proposed. Instead, six individual brown bullhead samples are proposed for whole body analysis. These data will be evaluated in the ERA.
- ◆ White sucker were not identified as a target or alternative receptor in the Fish/Decapod QAPP (Windward 2009a); however, five fillet and five carcass samples have been added based on five individual white suckers per USEPA (Vaughn 2010).

The bullhead/catfish, carp, and white sucker analysis options are summarized in Table 4.

Table 4. Summary of analysis options for invertivorous/omnivorous fish

Sample Type by Species	Reach	No. of Samples		
		Fillet	Carcass	Whole Body
Channel Catfish				
Individual	5	1	1	-
	6	2	2	-
	7	2	2	-
	8	6	6	-
Total	na	11	11	0
White Catfish ^a				
Individual	2	1	1	-
	3	4	4	-
	4	1	1	-
	5	2 ^b	2	-
	6	5	5	-
	7	2	2	-
	8	4	4	-
Total	na	19	19	0
Brown Bullhead				
Individual	3	-	-	1
	4	-	-	1
	6	-	-	1
	6	-	-	1
	6	-	-	1
	7	-	-	1
Total	na	0	0	6
Carp				
Individual	3	2	-	2
	4	2	-	2
	5	2	-	2
	6	2	-	2
	7	2	-	2
	8	2	-	2
Total	na	12	0	12
White Sucker				
Individual	4	1 ^c	1	-
	5	2	2	-
	8	2	2	-
Total	na	5	5	0

- ^a The target size for white catfish was assumed to be the same as that for channel catfish (i.e., 12 in. [305 mm]); however, the target size was reduced to 9 in. (228 mm).
 - ^b Estimated fillet sample mass of one sample (141 g) is less than minimum mass requirement (150 g).
 - ^c Estimated fillet sample mass (145 g) is less than minimum mass requirement (150 g).
- na – not applicable

4 OMNIVORE/PISCIVORE: LARGEMOUTH BASS

Target Species/Tissue Type

- ◆ Freshwater zone: largemouth bass⁶ (skin-on fillet and carcass)
- ◆ Target length: 12 in. (305 mm) (also minimum legal catch size)

Catch Summary

- ◆ Largemouth bass were the targeted omnivore/piscivore species in the freshwater zone; however, other bass species and northern pike (the alternative species for this feeding guild and zone) were also collected in both the estuarine and freshwater zones:
 - ◆ A total of 18 largemouth bass were caught in three of the reaches (4, 5, and 8). However, all but two fish were less than the target length of 12 in. (305 mm), and all but four were less than 8 in. (203 mm). The estimated fillet mass in individual largemouth bass less than 8 in. (203 mm) is less than 10 g.
 - ◆ A total of 9 smallmouth bass and 12 striped bass were caught in Reaches 4, 5, and 8, and 1 striped bass was caught in Reach 1. Eight rock bass were collected from Reach 8, and one rock bass was collected from Reach 6. Two northern pike were collected (one each in Reaches 5 and 6).

Analysis Options

- ◆ Only a limited number of samples is possible for either bass species or northern pike due to the insufficient number and limited mass of specimens collected. Composite samples are proposed for largemouth and smallmouth bass to provide data (albeit limited) for resident fish in this feeding guild. Bass also represent a species that are caught and consumed by people.
- ◆ Largemouth bass, smallmouth bass, and northern pike samples are proposed following USEPA's recommendation (Vaughn 2010). Two individual samples (from Reaches 5 and 8) and one composite sample (from Reach 5) are proposed for largemouth bass. Three composite samples (from Reaches 4, 5, and 8) are proposed for smallmouth bass. One individual sample (from Reach 6) is proposed for northern pike.
- ◆ Target sizes for largemouth bass and smallmouth bass were reduced from 12 in. (305 mm) to 8 in. (203 mm).

⁶ The alternative freshwater omnivore/piscivore species was northern pike.

A summary of the bass and northern pike analysis options are presented in Table 5.

Table 5. Summary of bass and pike analysis options

Sample Type by Species	Reach(es)	No. of Samples ^a	No. of Fish per Sample
Largemouth Bass			
Composite	5	1 ^b	2
Individual	5	1 ^{b, c}	1
	8	1 ^{b, c}	1
Total	na	3	4
Smallmouth Bass			
Composite	4	1 ^d	2
	5	1 ^d	2
	8	1 ^{c, d}	3
Total	na	2	7
Northern Pike			
Individual	6	1	1
Total	na	1	1

^a Two tissue types will be analyzed: fillet and carcass tissue.

^b The target size of largemouth bass was reduced from 12 in. (305 mm) to 8 in. (203 mm) in order to create two composite samples.

^c Estimated fillet sample mass (ranging from 136 to 147 g) is less than minimum mass requirement (150 g).

^d New Jersey legal catch size for smallmouth bass is 12 in. (305 mm); however, the target size was reduced to 8 in. (203 mm) in order to maximize the number of samples possible.

na – not applicable

5 REFERENCES

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Vaughn S. 2010. Personal communication (e-mail to R. Law, de maximis, regarding tissue sampling and compositing meeting). US Environmental Protection Agency, January 8, 2010.

Windward. 2009a. Lower Passaic River Restoration Project. Lower Passaic River Study Area RI/FS. Quality Assurance Project Plan: Fish and decapod crustacean tissue collection for chemical analysis and fish community survey. Final. Prepared for Cooperating Parties Group, Newark, New Jersey. Windward Environmental LLC, Seattle, WA.

Windward. 2009b. Memorandum dated November 6, 2009, to Robert Law, de maximis, inc.: Proposed sample analysis plan for fish/decapod tissue for the Lower Passaic River Restoration Project. Windward Environmental LLC, Seattle, WA.

Table A1. Summary of proposed samples for all fish species (excluding white perch and American eel)

						Estimated Mass (g)			
Reach	Reach	RM	Location (s)	Sample ID (tissue type 1)	Sample ID (tissue type 2)	Fillet	Carcass	WB mass (g)	n
Carp	3	RM 4 - RM 6	LPR3M	LPR3-CCFT-Ind004		1200			1
Carp	3	RM 4 - RM 6	LPR3M		LPR3-CCWB-Ind005			2200	1
Carp	3	RM 4 - RM 6	LPR3N	LPR3-CCFT-Ind001		1667			1
Carp	3	RM 4 - RM 6	LPR3N		LPR3-CCWB-Ind002			2590	1
Carp	4	RM 6 - RM 8	LPR4O	LPR4-CCFT-Ind155		2377			1
Carp	4	RM 6 - RM 8	LPR4L	LPR4-CCFT-Ind156		1283			1
Carp	4	RM 6 - RM 8	LPR4S		LPR4-CCWB-Ind175			3748	1
Carp	4	RM 6 - RM 8	LPR4T		LPR4-CCWB-Ind186			3498	1
Carp	5	RM 8 - RM 10	LPR5G		LPR5-CCWB-Ind011			2500	1
Carp	5	RM 8 - RM 10	LPR5R		LPR5-CCWB-Ind160			3898	1
Carp	5	RM 10 - RM 12	LPR5S	LPR5-CCFT-Ind181		2225			1
Carp	5	RM 10 - RM 12	LPR5T	LPR5-CCFT-Ind184		1785			1
Carp	6	RM 10 - RM 12	LPR6L	LPR6-CCFT-Ind032		1500			1
Carp	6	RM 10 - RM 12	LPR6L	LPR6-CCFT-Ind104		1667			1
Carp	6	RM 10 - RM 12	LPR6M		LPR6-CCWB-Ind028			3050	1
Carp	6	RM 10 - RM 12	LPR6N		LPR6-CCWB-Ind021			2963	1
Carp	7	RM 12 - RM 14	LPR7L		LPR7-CCWB-Ind042			3100	1
Carp	7	RM 12 - RM 14	LPR7L	LPR7-CCFT-Ind092		1056			1
Carp	7	RM 12 - RM 14	LPR7M	LPR7-CCFT-Ind068		1054			1
Carp	7	RM 12 - RM 14	LPR7M		LPR7-CCWB-Ind069			3056	1
Carp	8	RM 14 - RM 17.4	LPR8R	LPR8-CCFT-Ind131		1383			1
Carp	8	RM 14 - RM 17.4	LPR8S	LPR8-CCFT-Ind121		1553			1
Carp	8	RM 14 - RM 17.4	LPR8U		LPR8-CCWB-Ind139			3140	1
Carp	8	RM 14 - RM 17.4	LPR8X		LPR8-CCWB-Ind147			3064	1
Channel catfish	5	RM 8 - RM 10	LPR5F	LPR5-IPFT-Ind001	LPR5-IPCT-Ind001	203	407		1
Channel catfish	6	RM 10 - RM 12	LPR6M	LPR6-IPFT-Ind004	LPR6-IPCT-Ind004	236	472		1
Channel catfish	6	RM 10 - RM 12	LPR6Q	LPR6-IPFT-Ind003	LPR6-IPCT-Ind003	270	540		1
Channel catfish	7	RM 12 - RM 14	LPR7L	LPR7-IPFT-Ind005	LPR7-IPCT-Ind005	163	325		1
Channel catfish	7	RM 12 - RM 14	LPR7Q	LPR7-IPFT-Ind006	LPR7-IPCT-Ind006	300	600		1
Channel catfish	8	RM 14 - RM 17.4	LPR8R	LPR8-IPFT-Ind008	LPR8-IPCT-Ind008	170	340		1
Channel catfish	8	RM 14 - RM 17.4	LPR8R	LPR8-IPFT-Ind009	LPR8-IPCT-Ind009	497	993		1
Channel catfish	8	RM 14 - RM 17.4	LPR8S	LPR8-IPFT-Ind010	LPR8-IPCT-Ind010	308	617		1
Channel catfish	8	RM 14 - RM 17.4	LPR8S	LPR8-IPFT-Ind011	LPR8-IPCT-Ind011	338	677		1
Channel catfish	8	RM 14 - RM 17.4	LPR8S	LPR8-IPFT-Ind012	LPR8-IPCT-Ind012	302	603		1
Channel catfish	8	RM 14 - RM 17.4	LPR8S	LPR8-IPFT-Ind013	LPR8-IPCT-Ind013	325	650		1
White catfish	2	RM 2 - RM 4	LPR2K	LPR2-ACFT-Ind018	LPR2-ACCT-Ind018	259	519		1
White catfish	3	RM 4 - RM 6	LPR3L	LPR3-ACFT-Ind001	LPR3-ACCT-Ind001	209	419		1
White catfish	3	RM 4 - RM 6	LPR3L	LPR3-ACFT-Ind002	LPR3-ACCT-Ind002	417	833		1
White catfish	3	RM 4 - RM 6	LPR3P	LPR3-ACFT-Ind005	LPR3-ACCT-Ind005	417	833		1
White catfish	3	RM 4 - RM 6	LPR3Q	LPR3-ACFT-Ind003	LPR3-ACCT-Ind003	170	340		1

Table A1. Summary of proposed samples for all fish species (excluding white perch and American eel)

						Estimated Mass (g)			
Reach	Reach	RM	Location (s)	Sample ID (tissue type 1)	Sample ID (tissue type 2)	Fillet	Carcass	WB mass (g)	n
White catfish	4	RM 6 - RM 8	LPR4L	LPR4-ACFT-Ind023	LPR4-ACCT-Ind023	431	863		1
White catfish	5	RM 8 - RM 10	LPR5H	LPR5-ACFT-Ind006	LPR5-ACCT-Ind006	141	281		1
White catfish	5	RM 8 - RM 10	LPR5S	LPR5-ACFT-Ind024	LPR5-ACCT-Ind024	565	1130		1
White catfish	6	RM 10 - RM 12	LPR6P	LPR6-ACFT-Ind016	LPR6-ACCT-Ind016	159	317		1
White catfish	6	RM 10 - RM 12	LPR6R	LPR6-ACFT-Ind008	LPR6-ACCT-Ind008	227	453		1
White catfish	6	RM 10 - RM 12	LPR6R	LPR6-ACFT-Ind009	LPR6-ACCT-Ind009	213	425		1
White catfish	6	RM 10 - RM 12	LPR6S	LPR6-ACFT-Ind010	LPR6-ACCT-Ind010	210	420		1
White catfish	6	RM 10 - RM 12	LPR6S	LPR6-ACFT-Ind013	LPR6-ACCT-Ind013	280	560		1
White catfish	7	RM 12 - RM 14	LPR7N	LPR7-ACFT-Ind017	LPR7-ACCT-Ind017	252	504		1
White catfish	7	RM 12 - RM 14	LPR7P	LPR7-ACFT-Ind014	LPR7-ACCT-Ind014	328	656		1
White catfish	8	RM 14 - RM 17.4	LPR8Q	LPR8-ACFT-Ind019	LPR8-ACCT-Ind019	300	600		1
White catfish	8	RM 14 - RM 17.4	LPR8R	LPR8-ACFT-Ind020	LPR8-ACCT-Ind020	501	1003		1
White catfish	8	RM 14 - RM 17.4	LPR8R	LPR8-ACFT-Ind021	LPR8-ACCT-Ind021	455	911		1
White catfish	8	RM 14 - RM 17.4	LPR8S	LPR8-ACFT-Ind022	LPR8-ACCT-Ind022	197	393		1
Brown bullhead	3	RM 4 - RM 6	LPR3F	LPR3-ANWB-Ind001				300	1
Brown bullhead	4	RM 6 - RM 8	LPR4O	LPR4-ANWB-Ind007				414	1
Brown bullhead	6	RM 10 - RM 12	LPR6P	LPR6-ANWB-Ind004				330	1
Brown bullhead	6	RM 10 - RM 12	LPR6P	LPR6-ANWB-Ind005				240	1
Brown bullhead	6	RM 10 - RM 12	LPR6S	LPR6-ANWB-Ind003				188	1
Brown bullhead	7	RM 12 - RM 14	LPR7P	LPR7-ANWB-Ind006				200	1
White sucker	4	RM 6 - RM 8	LPR4T	LPR4-WSFT-Ind023	LPR4-WSCT-Ind023	145	289		1
White sucker	5	RM 8 - RM 10	LPR5I	LPR5-WSFT-Ind019	LPR5-WSCT-Ind019	321	643		1
White sucker	5	RM 8 - RM 10	LPR5T	LPR5-WSFT-Ind020	LPR5-WSCT-Ind020	233	467		1
White sucker	8	RM 14 - RM 17.4	LPR8V	LPR8-WSFT-Ind009	LPR8-WSCT-Ind009	189	377		1
White sucker	8	RM 14 - RM 17.4	LPR8W	LPR8-WSFT-Ind013	LPR8-WSCT-Ind013	263	525		1
Largemouth bass	5	RM 8 - RM 10	LPR5Q, LPR5R	LPR5-MSFT-Comp01	LPR5-MSCT-Comp01	164	328		2
Largemouth bass	5	RM 8 - RM 10	LPR5R	LPR5-MSFT-Ind009	LPR5-MSCT-Ind009	147	293		1
Largemouth bass	8	RM 14 - RM 17.4	LPR8X	LPR8-MSFT-Ind002	LPR8-MSCT-Ind002	141	281		1
Smallmouth bass	4	RM 6 - RM 8	LPR4S	LPR4-MDFT-Comp01	LPR4-MDCT-Comp01	155	311		2
Smallmouth bass	5	RM 8 - RM 10	LPR5Q, LPR5R	LPR5-MDFT-Comp02	LPR5-MDCT-Comp02	171	342		2
Smallmouth bass	8	RM 14 - RM 17.4	LPR8U, LPR8V, LPR8Z	LPR8-MDFT-Comp03	LPR8-MDCT-Comp03	136	271		3
Northern pike	6	RM 10 - RM 12	LPR6L	LPR6-ELFT-Ind001	LPR6-ELCT-Ind001	933	1867		1

Notes:

Bold italic samples are samples with estimated mass of < 150 g; reduced analyte list may be necessary

Shaded cells indicate the samples targeted for QC analysis

Table A2. Proposed carp samples for analysis

Reach	RM	Trap ID	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	Gender	Specimen Comments	Sample ID (tissue type 1)	Sample ID (tissue type 2)	Sample Type
LPR3	4-6	LPR3M-A	LPR3M-CC004	3600	1200.0	635	indeterminant		LPR3-CCFT-Ind004		individual
LPR3	4-6	LPR3M-A	LPR3M-CC005	2200	733.3	550	indeterminant			LPR3-CCWB-Ind005	individual
LPR3	4-6	LPR3N-A	LPR3N-CC001	5000	1666.7	610	indeterminant	Length >610, weight >5000	LPR3-CCFT-Ind001		individual
LPR3	4-6	LPR3N-A	LPR3N-CC002	2590	863.3	575	indeterminant			LPR3-CCWB-Ind002	individual
LPR4	6-8	LPR4L-A	LPR4L-CC152	2600	866.7	546	indeterminant				
LPR4	6-8	LPR4P-A	LPR4P-CC009	1900	633.3	485	indeterminant				
LPR4	6-8	LPR4P-A	LPR4P-CC017	2900	966.7	560	indeterminant				
LPR4	6-8	LPR4P-A	LPR4P-CC154	3950	1316.7	611	indeterminant				
LPR4	6-8	LPR4O-A	LPR4O-CC155	7130	2376.7	779	indeterminant		LPR4-CCFT-Ind155		individual
LPR4	6-8	LPR4L-A	LPR4L-CC156	3850	1283.3	606	indeterminant		LPR4-CCFT-Ind156		individual
LPR4	6-8	LPR4R-A	LPR4R-CC173	2074	691.3	525	indeterminant				
LPR4	6-8	LPR4R-A	LPR4R-CC174	2398	799.3	535	indeterminant				
LPR4	6-8	LPR4R-A	LPR4R-CC187	2632	877.3	567	indeterminant				
LPR4	6-8	LPR4S-A	LPR4S-CC175	3748	1249.3	607	indeterminant			LPR4-CCWB-Ind175	individual
LPR4	6-8	LPR4S-A	LPR4S-CC176	2498	832.7	540	indeterminant				
LPR4	6-8	LPR4S-A	LPR4S-CC177	3350	1116.7	630	indeterminant				
LPR4	6-8	LPR4S-A	LPR4S-CC188	2102	700.7	532	indeterminant				
LPR4	6-8	LPR4T-A	LPR4T-CC178	2182	727.3	534	indeterminant				
LPR4	6-8	LPR4T-A	LPR4T-CC186	3498	1166.0	573	indeterminant			LPR4-CCWB-Ind186	individual
LPR5	8-10	LPR5E-A	LPR5E-CC006	2050	683.3	516	indeterminant				
LPR5	8-10	LPR5E-A	LPR5E-CC007	2550	850.0	574	indeterminant				
LPR5	8-10	LPR5E-A	LPR5E-CC008	3950	1316.7	592	indeterminant				
LPR5	8-10	LPR5E-A	LPR5E-CC010	2500	833.3	646	indeterminant				
LPR5	8-10	LPR5E-A	LPR5E-CC012	4200	1400.0	650	indeterminant				
LPR5	8-10	LPR5E-A	LPR5E-CC013	3450	1150.0	600	indeterminant				
LPR5	8-10	LPR5E-A	LPR5E-CC014	4550	1516.7	645	indeterminant				
LPR5	8-10	LPR5E-A	LPR5E-CC015	2950	983.3	565	indeterminant				
LPR5	8-10	LPR5E-A	LPR5E-CC018	2250	750.0	520	indeterminant				
LPR5	8-10	LPR5G-A	LPR5G-CC011	2500	833.3	524	indeterminant			LPR5-CCWB-Ind011	individual
LPR5	8-10	LPR5G-A	LPR5G-CC016	1400	466.7	470	indeterminant	Missing left eye			
LPR5	8-10	LPR5I-A	LPR5I-CC153	2100	700.0	542	indeterminant				
LPR5	8-10	LPR5Q-A	LPR5Q-CC179	2708	902.7	556	indeterminant				
LPR5	8-10	LPR5R-A	LPR5R-CC157	3052	1017.3	544	indeterminant				
LPR5	8-10	LPR5R-A	LPR5R-CC158	3960	1320.0	604	indeterminant				
LPR5	8-10	LPR5R-A	LPR5R-CC159	2700	900.0	564	indeterminant				
LPR5	8-10	LPR5R-A	LPR5R-CC160	3898	1299.3	608	indeterminant			LPR5-CCWB-Ind160	individual
LPR5	8-10	LPR5R-A	LPR5R-CC161	3056	1018.7	577	indeterminant				
LPR5	8-10	LPR5R-A	LPR5R-CC162	3296	1098.7	596	indeterminant				
LPR5	8-10	LPR5R-A	LPR5R-CC163	2878	959.3	560	indeterminant				
LPR5	8-10	LPR5S-A	LPR5S-CC165	4590	1530.0	616	indeterminant				
LPR5	8-10	LPR5S-A	LPR5S-CC166	5090	1696.7	666	indeterminant				
LPR5	8-10	LPR5S-A	LPR5S-CC167	4065	1355.0	627	indeterminant				
LPR5	8-10	LPR5S-A	LPR5S-CC168	3670	1223.3	636	indeterminant				
LPR5	8-10	LPR5S-A	LPR5S-CC169	6040	2013.3	718	indeterminant				
LPR5	8-10	LPR5S-A	LPR5S-CC170	5555	1851.7	666	indeterminant				
LPR5	8-10	LPR5S-A	LPR5S-CC180	2506	835.3	533	indeterminant				
LPR5	8-10	LPR5S-A	LPR5S-CC181	6675	2225.0	727	indeterminant		LPR5-CCFT-Ind181		individual

Table A2. Proposed carp samples for analysis

Reach	RM	Trap ID	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	Gender	Specimen Comments	Sample ID (tissue type 1)	Sample ID (tissue type 2)	Sample Type
LPR5	8-10	LPR5S-A	LPR5S-CC182	2716	905.3	530	indeterminant				
LPR5	8-10	LPR5T-A	LPR5T-CC172	3358	1119.3	577	indeterminant				
LPR5	8-10	LPR5T-A	LPR5T-CC183	3772	1257.3	608	indeterminant				
LPR5	8-10	LPR5T-A	LPR5T-CC184	5355	1785.0	635	indeterminant		LPR5-CCFT-Ind184		individual
LPR5	8-10	LPR5T-A	LPR5T-CC185	3684	1228.0	645	indeterminant				
LPR6	10-12	LPR6L-A	LPR6L-CC031	1910	636.7	509	indeterminant	Missing left eye			
LPR6	10-12	LPR6L-A	LPR6L-CC032	4500	1500.0	625	indeterminant		LPR6-CCFT-Ind032		individual
LPR6	10-12	LPR6L-A	LPR6L-CC033	2220	740.0	532	indeterminant				
LPR6	10-12	LPR6L-A	LPR6L-CC050	2132	710.7	530	indeterminant				
LPR6	10-12	LPR6L-A	LPR6L-CC051	2624	874.7	575	indeterminant				
LPR6	10-12	LPR6L-A	LPR6L-CC052	1652	550.7	500	indeterminant				
LPR6	10-12	LPR6L-A	LPR6L-CC053	2096	698.7	555	indeterminant				
LPR6	10-12	LPR6L-A	LPR6L-CC054	2242	747.3	535	indeterminant				
LPR6	10-12	LPR6L-A	LPR6L-CC066	1884	628.0	495	indeterminant				
LPR6	10-12	LPR6L-A	LPR6L-CC067	3526	1175.3	582	indeterminant	Missing right eye			
LPR6	10-12	LPR6L-A	LPR6L-CC084	3494	1164.7	615	indeterminant				
LPR6	10-12	LPR6L-A	LPR6L-CC085	2422	807.3	550	indeterminant				
LPR6	10-12	LPR6L-A	LPR6L-CC086	3398	1132.7	570	indeterminant				
LPR6	10-12	LPR6L-A	LPR6L-CC104	5000	1666.7	709	indeterminant	Weight >5000 g	LPR6-CCFT-Ind104		individual
LPR6	10-12	LPR6L-A	LPR6L-CC105	3188	1062.7	603	indeterminant				
LPR6	10-12	LPR6L-A	LPR6L-CC106	2296	765.3	536	indeterminant				
LPR6	10-12	LPR6L-A	LPR6L-CC107	3058	1019.3	554	indeterminant				
LPR6	10-12	LPR6M-A	LPR6M-CC027	3000	1000.0	570	indeterminant				
LPR6	10-12	LPR6M-A	LPR6M-CC028	3050	1016.7	590	indeterminant			LPR6-CCWB-Ind028	individual
LPR6	10-12	LPR6M-A	LPR6M-CC029	1950	650.0	480	indeterminant	Frayed caudal fin			
LPR6	10-12	LPR6M-A	LPR6M-CC030	2050	683.3	475	indeterminant	Frayed caudal fin			
LPR6	10-12	LPR6M-A	LPR6M-CC083	2520	840.0	540	indeterminant				
LPR6	10-12	LPR6M-A	LPR6M-CC100	2452	817.3	548	indeterminant				
LPR6	10-12	LPR6M-A	LPR6M-CC101	2156	718.7	528	indeterminant				
LPR6	10-12	LPR6M-A	LPR6M-CC102	2598	866.0	552	indeterminant				
LPR6	10-12	LPR6M-A	LPR6M-CC103	2418	806.0	532	indeterminant				
LPR6	10-12	LPR6N-A	LPR6N-CC019	2242	747.3	547	indeterminant	Fins damaged by gillnet			
LPR6	10-12	LPR6N-A	LPR6N-CC020	2550	850.0	535	indeterminant	Fins damaged by gillnet			
LPR6	10-12	LPR6N-A	LPR6N-CC021	2963	987.7	570	indeterminant	Fins damaged by gillnet		LPR6-CCWB-Ind021	individual
LPR6	10-12	LPR6N-A	LPR6N-CC022	1930	643.3	519	indeterminant	Fins damaged by gillnet			
LPR6	10-12	LPR6N-A	LPR6N-CC023	2448	816.0	565	indeterminant	Fins damaged by gillnet			
LPR6	10-12	LPR6N-A	LPR6N-CC024	2200	733.3	520	indeterminant	Fins damaged by gillnet			
LPR6	10-12	LPR6N-A	LPR6N-CC025	2134	711.3	475	indeterminant	Fins damaged by gillnet			
LPR6	10-12	LPR6N-A	LPR6N-CC026	2028	676.0	530	indeterminant	Fins damaged by gillnet			
LPR6	10-12	LPR6N-A	LPR6N-CC045	2600	866.7	555	indeterminant				
LPR6	10-12	LPR6N-A	LPR6N-CC046	2060	686.7	563	indeterminant				
LPR6	10-12	LPR6N-A	LPR6N-CC047	2198	732.7	517	indeterminant				
LPR6	10-12	LPR6N-A	LPR6N-CC048	1960	653.3	550	indeterminant				
LPR6	10-12	LPR6N-A	LPR6N-CC064	1732	577.3	494	indeterminant				
LPR6	10-12	LPR6N-A	LPR6N-CC065	2342	780.7	558	indeterminant				
LPR6	10-12	LPR6N-A	LPR6N-CC096	2380	793.3	506	indeterminant				
LPR6	10-12	LPR6N-A	LPR6N-CC097	2246	748.7	527	indeterminant				

Table A2. Proposed carp samples for analysis

Reach	RM	Trap ID	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	Gender	Specimen Comments	Sample ID (tissue type 1)	Sample ID (tissue type 2)	Sample Type
LPR6	10-12	LPR6N-A	LPR6N-CC098	2436	812.0	527	indeterminant				
LPR6	10-12	LPR6N-A	LPR6N-CC099	1806	602.0	486	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC037	2032	677.3	530	indeterminant	Fins damaged by gillnet			
LPR7	12-14	LPR7L-A	LPR7L-CC038	1166	388.7	400	indeterminant	Fins and head damaged by gillnet			
LPR7	12-14	LPR7L-A	LPR7L-CC039	2470	823.3	530	indeterminant	Fins damaged by gillnet			
LPR7	12-14	LPR7L-A	LPR7L-CC040	1690	563.3	475	indeterminant	Fins damaged by gillnet			
LPR7	12-14	LPR7L-A	LPR7L-CC041	2054	684.7	510	indeterminant	Fins damaged by gillnet			
LPR7	12-14	LPR7L-A	LPR7L-CC042	3100	1033.3	610	indeterminant	Fins damaged by gillnet		LPR7-CCWB-Ind042	individual
LPR7	12-14	LPR7L-A	LPR7L-CC043	2048	682.7	515	indeterminant	Fins damaged by gillnet			
LPR7	12-14	LPR7L-A	LPR7L-CC061	2044	681.3	520	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC062	2090	696.7	530	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC063	2416	805.3	535	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC074	2756	918.7	564	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC075	2274	758.0	528	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC076	2992	997.3	569	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC077	1340	446.7	448	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC078	1516	505.3	471	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC079	2358	786.0	535	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC080	1604	534.7	467	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC081	2262	754.0	558	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC082	2500	833.3	572	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC087	2334	778.0	542	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC088	2076	692.0	512	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC089	2146	715.3	508	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC090	3050	1016.7	569	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC091	2554	851.3	564	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC092	3168	1056.0	569	indeterminant		LPR7-CCFT-Ind092		individual
LPR7	12-14	LPR7L-A	LPR7L-CC093	2104	701.3	549	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC094	2366	788.7	524	indeterminant	Damaged caudal fin			
LPR7	12-14	LPR7L-A	LPR7L-CC095	2970	990.0	587	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC113	2044	681.3	532	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC114	1982	660.7	515	indeterminant	Missing both eyes. Damaged caudal fin			
LPR7	12-14	LPR7L-A	LPR7L-CC115	2062	687.3	483	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC116	1558	519.3	472	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC117	2116	705.3	534	indeterminant				
LPR7	12-14	LPR7L-A	LPR7L-CC118	2480	826.7	553	indeterminant				
LPR7	12-14	LPR7M-A	LPR7M-CC034	2830	943.3	578	indeterminant				
LPR7	12-14	LPR7M-A	LPR7M-CC035	2750	916.7	564	indeterminant				
LPR7	12-14	LPR7M-A	LPR7M-CC036	1850	616.7	520	indeterminant				
LPR7	12-14	LPR7M-A	LPR7M-CC055	2234	744.7	560	indeterminant				
LPR7	12-14	LPR7M-A	LPR7M-CC056	2188	729.3	530	indeterminant				
LPR7	12-14	LPR7M-A	LPR7M-CC057	2806	935.3	580	indeterminant	Carp subspecies			
LPR7	12-14	LPR7M-A	LPR7M-CC058	2208	736.0	550	indeterminant				
LPR7	12-14	LPR7M-A	LPR7M-CC059	1888	629.3	515	indeterminant				
LPR7	12-14	LPR7M-A	LPR7M-CC068	3162	1054.0	583	indeterminant		LPR7-CCFT-Ind068		individual
LPR7	12-14	LPR7M-A	LPR7M-CC069	3056	1018.7	570	indeterminant			LPR7-CCWB-Ind069	individual
LPR7	12-14	LPR7M-A	LPR7M-CC070	2064	688.0	513	indeterminant				

Table A2. Proposed carp samples for analysis

Reach	RM	Trap ID	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	Gender	Specimen Comments	Sample ID (tissue type 1)	Sample ID (tissue type 2)	Sample Type
LPR7	12-14	LPR7M-A	LPR7M-CC071	1902	634.0	517	indeterminant				
LPR7	12-14	LPR7M-A	LPR7M-CC072	2326	775.3	545	indeterminant				
LPR7	12-14	LPR7M-A	LPR7M-CC073	1870	623.3	498	indeterminant				
LPR7	12-14	LPR7M-A	LPR7M-CC108	2396	798.7	507	indeterminant				
LPR7	12-14	LPR7M-A	LPR7M-CC109	2052	684.0	463	indeterminant				
LPR7	12-14	LPR7M-A	LPR7M-CC110	2084	694.7	517	indeterminant				
LPR7	12-14	LPR7M-A	LPR7M-CC111	1448	482.7	456	indeterminant				
LPR7	12-14	LPR7M-A	LPR7M-CC112	2208	736.0	523	indeterminant				
LPR8	14-17.4	LPR8R-A	LPR8R-CC127	1684	561.3	475	indeterminant				
LPR8	14-17.4	LPR8R-A	LPR8R-CC128	3106	1035.3	584	indeterminant				
LPR8	14-17.4	LPR8R-A	LPR8R-CC129	2086	695.3	514	indeterminant				
LPR8	14-17.4	LPR8R-A	LPR8R-CC130	2840	946.7	596	indeterminant				
LPR8	14-17.4	LPR8R-A	LPR8R-CC131	4150	1383.3	654	indeterminant		LPR8-CCFT-Ind131		individual
LPR8	14-17.4	LPR8R-A	LPR8R-CC132	2560	853.3	564	indeterminant				
LPR8	14-17.4	LPR8R-A	LPR8R-CC142	2820	940.0	555	indeterminant				
LPR8	14-17.4	LPR8S-A	LPR8S-CC119	3114	1038.0	602	indeterminant				
LPR8	14-17.4	LPR8S-A	LPR8S-CC120	2300	766.7	518	indeterminant				
LPR8	14-17.4	LPR8S-A	LPR8S-CC121	4658	1552.7	549	indeterminant		LPR8-CCFT-Ind121		individual
LPR8	14-17.4	LPR8S-A	LPR8S-CC122	2810	936.7	598	indeterminant				
LPR8	14-17.4	LPR8S-A	LPR8S-CC123	3040	1013.3	597	indeterminant				
LPR8	14-17.4	LPR8S-A	LPR8S-CC124	2502	834.0	556	indeterminant				
LPR8	14-17.4	LPR8S-A	LPR8S-CC133	2650	883.3	554	indeterminant				
LPR8	14-17.4	LPR8S-A	LPR8S-CC134	3630	1210.0	603	indeterminant	Abrasion on ventral side			
LPR8	14-17.4	LPR8S-A	LPR8S-CC135	2750	916.7	562	indeterminant				
LPR8	14-17.4	LPR8S-A	LPR8S-CC136	1500	500.0	472	indeterminant				
LPR8	14-17.4	LPR8S-A	LPR8S-CC137	1675	558.3	505	indeterminant				
LPR8	14-17.4	LPR8S-A	LPR8S-CC138	2200	733.3	520	indeterminant				
LPR8	14-17.4	LPR8S-A	LPR8S-CC148	2260	753.3	553	indeterminant				
LPR8	14-17.4	LPR8S-A	LPR8S-CC149	2366	788.7	525	indeterminant				
LPR8	14-17.4	LPR8S-A	LPR8S-CC150	2260	753.3	516	indeterminant				
LPR8	14-17.4	LPR8S-A	LPR8S-CC151	1430	476.7	451	indeterminant				
LPR8	14-17.4	LPR8U-A	LPR8U-CC139	3140	1046.7	598	indeterminant			LPR8-CCWB-Ind139	individual
LPR8	14-17.4	LPR8U-A	LPR8U-CC140	2768	922.7	555	indeterminant				
LPR8	14-17.4	LPR8U-A	LPR8U-CC141	2358	786.0	553	indeterminant				
LPR8	14-17.4	LPR8V-A	LPR8V-CC143	1840	613.3	510	indeterminant				
LPR8	14-17.4	LPR8X-A	LPR8X-CC144	2625	875.0	549	indeterminant				
LPR8	14-17.4	LPR8X-A	LPR8X-CC145	2120	706.7	523	indeterminant				
LPR8	14-17.4	LPR8X-A	LPR8X-CC146	2884	961.3	609	indeterminant				
LPR8	14-17.4	LPR8X-A	LPR8X-CC147	3064	1021.3	596	indeterminant			LPR8-CCWB-Ind147	individual

Table A3. Proposed omnivores/invertivore samples for analysis (excluding white perch)

Species	Reach	Trap ID	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	Specimen Comments	Sample ID (tissue type 1)	Sample ID (tissue type 2)	Sample Type	Notes
Brown bullhead	LPR3	LPR3F-C	LPR3F-AN001	300	100.0	281		LPR3-ANWB-Ind001		individual	
Brown bullhead	LPR4	LPR4O-A	LPR4O-AN007	414	138.0	297		LPR4-ANWB-Ind007		individual	
Brown bullhead	LPR6	LPR6P-A	LPR6P-AN004	330	110.0	287	Missing right eye	LPR6-ANWB-Ind004		individual	
Brown bullhead	LPR6	LPR6P-C	LPR6P-AN005	240	80.0	259		LPR6-ANWB-Ind005		individual	
Brown bullhead	LPR6	LPR6S-C	LPR6S-AN002	130	43.3	210	Bulging left eye, damaged caudal fin				
Brown bullhead	LPR6	LPR6S-A	LPR6S-AN003	188	62.7	251		LPR6-ANWB-Ind003		individual	
Brown bullhead	LPR7	LPR7P-B	LPR7P-AN006	200	66.7	245		LPR7-ANWB-Ind006		individual	
Channel catfish	LPR5	LPR5F-A	LPR5F-IP001	610	203.3	430		LPR5-IPFT-Ind001	LPR5-IPCT-Ind001	individual	
Channel catfish	LPR5	LPR5O-B	LPR5O-IP002	44	14.7	183	< 305 mm				
Channel catfish	LPR5	LPR5O-B	LPR5O-IP014	42	14.0	185	< 305 mm				
Channel catfish	LPR6	LPR6M-A	LPR6M-IP004	708	236.0	435		LPR6-IPFT-Ind004	LPR6-IPCT-Ind004	individual	
Channel catfish	LPR6	LPR6Q-B	LPR6Q-IP003	810	270.0	493		LPR6-IPFT-Ind003	LPR6-IPCT-Ind003	individual	
Channel catfish	LPR6	LPR6S-A	LPR6S-IP007	286	95.3	340					
Channel catfish	LPR7	LPR7L-A	LPR7L-IP005	488	162.7	371	Damaged caudal fin	LPR7-IPFT-Ind005	LPR7-IPCT-Ind005	individual	
Channel catfish	LPR7	LPR7Q-C	LPR7Q-IP006	900	300.0	455		LPR7-IPFT-Ind006	LPR7-IPCT-Ind006	individual	
Channel catfish	LPR8	LPR8R-A	LPR8R-IP008	510	170.0	352		LPR8-IPFT-Ind008	LPR8-IPCT-Ind008	individual	
Channel catfish	LPR8	LPR8R-A	LPR8R-IP009	1490	496.7	510		LPR8-IPFT-Ind009	LPR8-IPCT-Ind009	individual	
Channel catfish	LPR8	LPR8S-A	LPR8S-IP010	925	308.3	460		LPR8-IPFT-Ind010	LPR8-IPCT-Ind010	individual	
Channel catfish	LPR8	LPR8S-A	LPR8S-IP011	1015	338.3	466		LPR8-IPFT-Ind011	LPR8-IPCT-Ind011	individual	
Channel catfish	LPR8	LPR8S-A	LPR8S-IP012	905	301.7	405	Damaged tail	LPR8-IPFT-Ind012	LPR8-IPCT-Ind012	individual	
Channel catfish	LPR8	LPR8S-A	LPR8S-IP013	975	325.0	480		LPR8-IPFT-Ind013	LPR8-IPCT-Ind013	individual	
White catfish	LPR2	LPR2K-A	LPR2K-AC018	778	259.3	355		LPR2-ACFT-Ind018	LPR2-ACCT-Ind018	individual	
White catfish	LPR3	LPR3L-A	LPR3L-AC001	628	209.3	370		LPR3-ACFT-Ind001	LPR3-ACCT-Ind001	individual	
White catfish	LPR3	LPR3L-C	LPR3L-AC002	1250	416.7	470		LPR3-ACFT-Ind002	LPR3-ACCT-Ind002	individual	
White catfish	LPR3	LPR3L-B	LPR3L-AC004	310	103.3	290					
White catfish	LPR3	LPR3P-B	LPR3P-AC005	1250	416.7	471		LPR3-ACFT-Ind005	LPR3-ACCT-Ind005	individual	
White catfish	LPR3	LPR3Q-B	LPR3Q-AC003	510	170.0	340		LPR3-ACFT-Ind003	LPR3-ACCT-Ind003	individual	
White catfish	LPR4	LPR4G-A	LPR4G-AC007	2	0.7	54	< 228 mm				
White catfish	LPR4	LPR4L-A	LPR4L-AC023	1294	431.3	437		LPR4-ACFT-Ind023	LPR4-ACCT-Ind023	individual	
White catfish	LPR5	LPR5H-C	LPR5H-AC006	422	140.7	315	Fin erosion	LPR5-ACFT-Ind006	LPR5-ACCT-Ind006	individual	
White catfish	LPR5	LPR5S-A	LPR5S-AC024	1695	565.0	490		LPR5-ACFT-Ind024	LPR5-ACCT-Ind024	individual	
White catfish	LPR6	LPR6P-A	LPR6P-AC011	120	40.0	228	Leach attached to mouth				
White catfish	LPR6	LPR6P-A	LPR6P-AC012	316	105.3	313					
White catfish	LPR6	LPR6P-A	LPR6P-AC016	476	158.7	329		LPR6-ACFT-Ind016	LPR6-ACCT-Ind016	individual	
White catfish	LPR6	LPR6R-B	LPR6R-AC008	680	226.7	385		LPR6-ACFT-Ind008	LPR6-ACCT-Ind008	individual	
White catfish	LPR6	LPR6R-B	LPR6R-AC009	638	212.7	377		LPR6-ACFT-Ind009	LPR6-ACCT-Ind009	individual	
White catfish	LPR6	LPR6S-A	LPR6S-AC010	630	210.0	376	Many leaches attached	LPR6-ACFT-Ind010	LPR6-ACCT-Ind010	individual	
White catfish	LPR6	LPR6S-B	LPR6S-AC013	840	280.0	400		LPR6-ACFT-Ind013	LPR6-ACCT-Ind013	individual	
White catfish	LPR7	LPR7C-B	LPR7C-AC015	1.5	0.5	50	< 228 mm				
White catfish	LPR7	LPR7N-A	LPR7N-AC017	756	252.0	402		LPR7-ACFT-Ind017	LPR7-ACCT-Ind017	individual	
White catfish	LPR7	LPR7P-C	LPR7P-AC014	984	328.0	398		LPR7-ACFT-Ind014	LPR7-ACCT-Ind014	individual	
White catfish	LPR8	LPR8Q-C	LPR8Q-AC019	900	300.0	402		LPR8-ACFT-Ind019	LPR8-ACCT-Ind019	individual	
White catfish	LPR8	LPR8R-A	LPR8R-AC020	1504	501.3	541		LPR8-ACFT-Ind020	LPR8-ACCT-Ind020	individual	
White catfish	LPR8	LPR8R-A	LPR8R-AC021	1366	455.3	504		LPR8-ACFT-Ind021	LPR8-ACCT-Ind021	individual	
White catfish	LPR8	LPR8S-A	LPR8S-AC022	590	196.7	358		LPR8-ACFT-Ind022	LPR8-ACCT-Ind022	individual	
White sucker	LPR4	LPR4S-A	LPR4S-WS022	362	120.7	325					
White sucker	LPR4	LPR4T-A	LPR4T-WS023	434	144.7	327		LPR4-WSFT-Ind023	LPR4-WSCT-Ind023	individual	estimated fillet mass < 150 g
White sucker	LPR5	LPR5I-A	LPR5I-WS019	964	321.3	420		LPR5-WSFT-Ind019	LPR5-WSCT-Ind019	individual	
White sucker	LPR5	LPR5T-A	LPR5T-WS020	700	233.3	381		LPR5-WSFT-Ind020	LPR5-WSCT-Ind020	individual	
White sucker	LPR5	LPR5T-A	LPR5T-WS021	616	205.3	375					
White sucker	LPR5	LPR5T-A	LPR5T-WS024	540	180.0	350					
White sucker	LPR8	LPR8V-A	LPR8V-WS006	620	206.7	386					
White sucker	LPR8	LPR8V-A	LPR8V-WS007	456	152.0	355					
White sucker	LPR8	LPR8V-A	LPR8V-WS008	712	237.3	400					

Table A3. Proposed omnivores/invertivore samples for analysis (excluding white perch)

Species	Reach	Trap ID	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	Specimen Comments	Sample ID (tissue type 1)	Sample ID (tissue type 2)	Sample Type	Notes
White sucker	LPR8	LPR8V-A	LPR8V-WS009	566	188.7	376		LPR8-WSFT-Ind009	LPR8-WSCT-Ind009	individual	
White sucker	LPR8	LPR8W-A	LPR8W-WS013	788	262.7	410		LPR8-WSFT-Ind013	LPR8-WSCT-Ind013	individual	
White sucker	LPR8	LPR8W-A	LPR8W-WS014	1032	344.0	453					
White sucker	LPR8	LPR8W-A	LPR8W-WS015	600	200.0	370					
White sucker	LPR8	LPR8W-A	LPR8W-WS016	610	203.3	374					
White sucker	LPR8	LPR8W-A	LPR8W-WS017	888	296.0	420					
White sucker	LPR8	LPR8W-A	LPR8W-WS018	470	156.7	345					
White sucker	LPR8	LPR8X-A	LPR8X-WS010	752	250.7	389					
White sucker	LPR8	LPR8X-A	LPR8X-WS011	696	232.0	392					
White sucker	LPR8	LPR8X-A	LPR8X-WS012	754	251.3	405					

Table A4. Proposed piscivore samples for analysis (excluding American eel)

Species	Reach	Trap ID	Collection Method	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	Specimen Comments	Sample ID (tissue type 1)	Sample ID (tissue type 2)	Sample Type	Notes
Largemouth bass	LPR4	LPR4R-A	Boat Electrofishing	LPR4R-MS017	18	6.0	108	< 203 mm				
Largemouth bass	LPR4	LPR4S-A	Boat Electrofishing	LPR4S-MS011	20	6.7	118	< 203 mm				
Largemouth bass	LPR4	LPR4T-A	Boat Electrofishing	LPR4T-MS012	22	7.3	124	< 203 mm				
Largemouth bass	LPR5	LPR5Q-A	Boat Electrofishing	LPR5Q-MS007	32	10.7	133	< 203 mm				
Largemouth bass	LPR5	LPR5Q-A	Boat Electrofishing	LPR5Q-MS013	172	57.3	219		LPR5-MSFT-Comp01	LPR5-MSCT-Comp01	composite	n=2 in Comp 1
Largemouth bass	LPR5	LPR5Q-A	Boat Electrofishing	LPR5Q-MS014	21	7.0	119	< 203 mm				
Largemouth bass	LPR5	LPR5R-A	Boat Electrofishing	LPR5R-MS008	22	7.3	120	< 203 mm				
Largemouth bass	LPR5	LPR5R-A	Boat Electrofishing	LPR5R-MS009	440	146.7	305		LPR5-MSFT-Ind009	LPR5-MSCT-Ind009	individual	estimated fillet mass < 150 g
Largemouth bass	LPR5	LPR5R-A	Boat Electrofishing	LPR5R-MS010	14	4.7	98	< 203 mm				
Largemouth bass	LPR5	LPR5R-A	Boat Electrofishing	LPR5R-MS015	320	106.7	279		LPR5-MSFT-Comp01	LPR5-MSCT-Comp01	composite	n=2 in Comp 1
Largemouth bass	LPR5	LPR5R-A	Boat Electrofishing	LPR5R-MS016	16	5.3	107	< 203 mm				
Largemouth bass	LPR5	LPR5S-A	Boat Electrofishing	LPR5S-MS018	21	7.0	120	< 203 mm				
Largemouth bass	LPR8	LPR8A-C	Minnow Trap	LPR8A-MS004	6.5	2.2	80	< 203 mm				
Largemouth bass	LPR8	LPR8H-A	Crayfish Trap	LPR8H-MS003	7	2.3	80	< 203 mm				
Largemouth bass	LPR8	LPR8W-A	Boat Electrofishing	LPR8W-MS001	2	0.7	58	< 203 mm				
Largemouth bass	LPR8	LPR8W-A	Boat Electrofishing	LPR8W-MS005	2	0.7	55	< 203 mm				
Largemouth bass	LPR8	LPR8X-A	Boat Electrofishing	LPR8X-MS002	422	140.7	307		LPR8-MSFT-Ind002	LPR8-MSCT-Ind002	individual	estimated fillet mass < 150 g
Largemouth bass	LPR8	LPR8Y-A	Backpack Electrofishing	LPR8Y-MS006	4.5	1.5	70	< 203 mm				
Smallmouth bass	LPR4	LPR4S-A	Boat Electrofishing	LPR4S-MD014	308	102.7	294		LPR4-MDFT-Comp01	LPR4-MDCT-Comp01	composite	n=2 in Comp 1
Smallmouth bass	LPR4	LPR4S-A	Boat Electrofishing	LPR4S-MD017	158	52.7	234		LPR4-MDFT-Comp01	LPR4-MDCT-Comp01	composite	n=2 in Comp 1
Smallmouth bass	LPR5	LPR5Q-A	Boat Electrofishing	LPR5Q-MD015	373	124.3	319		LPR5-MDFT-Comp02	LPR5-MDCT-Comp02	composite	n=2 in Comp 2
Smallmouth bass	LPR5	LPR5R-A	Boat Electrofishing	LPR5R-MD013	140	46.7	227		LPR5-MDFT-Comp02	LPR5-MDCT-Comp02	composite	n=2 in Comp 2
Smallmouth bass	LPR5	LPR5T-A	Boat Electrofishing	LPR5T-MD016	12	4.0	97	< 203 mm				
Smallmouth bass	LPR8	LPR8U-A	Boat Electrofishing	LPR8U-MD009	114	38.0	204		LPR8-MDFT-Comp03	LPR8-MDCT-Comp03	composite	estimated fillet mass < 150 g
Smallmouth bass	LPR8	LPR8V-A	Boat Electrofishing	LPR8V-MD011	184	61.3	249		LPR8-MDFT-Comp03	LPR8-MDCT-Comp03	composite	estimated fillet mass < 150 g
Smallmouth bass	LPR8	LPR8W-A	Boat Electrofishing	LPR8W-MD012	42	14.0	154	< 203 mm				
Smallmouth bass	LPR8	LPR8Z-A	Backpack Electrofishing	LPR8Z-MD010	109	36.3	190	< 203 mm	LPR8-MDFT-Comp03	LPR8-MDCT-Comp03	composite	estimated fillet mass < 150 g
Northern pike	LPR5	LPR5R-A	Boat Electrofishing	LPR5R-EL002	160	53.3	330					
Northern pike	LPR6	LPR6L-A	Gillnet	LPR6L-EL001	2800	933.3	740	Damaged caudal	LPR6-ELFT-Ind001	LPR6-ELCT-Ind001	individual	

Table A5. Coordinates of Sampling Locations where Specimens Caught

Trap ID	Collection Method	Final Easting	Final Northing	Number of Specimens		
				Specimens for Community Survey	Fish/Decapod Retained for Potential Chemistry	Fish Retained for Heath Assessment
LPR1A-A	Minnow Trap	598862	685983	3		
LPR1A-B	Minnow Trap	598921	685982	4		
LPR1A-C	Minnow Trap	598972	685982	5		
LPR1AA-A	Minnow Trap	598775	686320	5	6	
LPR1AA-B	Minnow Trap	598813	686336	6	7	
LPR1AA-C	Minnow Trap	598850	686350	7	2	
LPR1B-A	Minnow Trap	598145	686254	2		1
LPR1B-B	Minnow Trap	598185	686213	1		
LPR1B-C	Minnow Trap	598209	686193	3		
LPR1BB-A	Minnow Trap	598257	686353	2	3	
LPR1BB-B	Minnow Trap	598312	686378	2	2	
LPR1BB-C	Minnow Trap	598338	686356	3		
LPR1D-A	Minnow Trap	597403	690438	3	18	
LPR1D-B	Minnow Trap	597400	690423	4		
LPR1D-C	Minnow Trap	597396	690412	2		1
LPR1G-A	Trotline	597299	689861	2	4	
LPR1G-B	Trotline	597272	689789	2	1	
LPR1G-C	Trotline	597285	689722	5	1	
LPR1H-A	Trotline	596678	687147	2	1	
LPR1H-B	Trotline	596643	687098	1		
LPR1H-C	Trotline	596611	687015	1	1	
LPR1I-A	Gillnet	597827	691568	9	60	1
LPR1J-A	Gillnet	597398	688339	10	87	3
LPR1K-A	Gillnet	596645	685592	12	88	2
LPR1L-A	Crab Trap	598999	685962	2	12	
LPR1L-B	Crab Trap	598956	685956	2	9	
LPR1M-A	Crab Trap	598210	686152	2	9	
LPR1M-B	Crab Trap	598174	686182	1	8	
LPR1M-C	Crab Trap	598135	686244		9	
LPR1N-A	Crab Trap	597395	690389		4	
LPR1N-B	Crab Trap	597387	690368		9	
LPR1N-C	Crab Trap	597378	690344		2	
LPR1O-A	Eel Trap	598904	685938	7		
LPR1O-B	Eel Trap	598990	685941	9	1	3
LPR1O-C	Eel Trap	599042	685966	7		
LPR1P-A	Eel Trap	598131	686206	5		
LPR1P-B	Eel Trap	598165	686155	4	1	
LPR1P-C	Eel Trap	598236	686094	9		
LPR1Q-A	Eel Trap	597397	690396	7	6	1
LPR1Q-B	Eel Trap	597383	690365		43	
LPR1R-A	Dip Net	598449	686449		1	
LPR2B-A	Minnow Trap	596928	695100	3	5	
LPR2B-B	Minnow Trap	596925	695115	1	63	
LPR2B-C	Minnow Trap	596907	695131	2	11	
LPR2C-A	Minnow Trap	594657	695226	3	2	1
LPR2C-B	Minnow Trap	594680	695222	7	2	
LPR2C-C	Minnow Trap	594709	695217	5		
LPR2E-A	Minnow Trap	590126	692885	6	1	1
LPR2E-B	Minnow Trap	590172	692915	10	1	
LPR2E-C	Minnow Trap	590211	692944	9	1	
LPR2F-A	Trotline	590324	692663		1	
LPR2F-B	Trotline	590394	692681	1		
LPR2G-A	Trotline	592218	695220	2	1	
LPR2H-B	Trotline	596999	695616	2		
LPR2H-C	Trotline	597072	695600	1	1	
LPR2I-A	Gillnet	590155	692581	8	30	
LPR2J-A	Gillnet	594631	695595	5	34	
LPR2K-A	Gillnet	597724	695166	12	77	5
LPR2L-A	Crab Trap	596867	695157		7	
LPR2L-B	Crab Trap	596860	695179		1	
LPR2L-C	Crab Trap	596847	695184		6	
LPR2M-A	Crab Trap	594563	695228	1	2	
LPR2M-B	Crab Trap	594545	695240		10	
LPR2M-C	Crab Trap	594496	695245		5	

Table A5. Coordinates of Sampling Locations where Specimens Caught

Trap ID	Collection Method	Final Easting	Final Northing	Number of Specimens		
				Specimens for Community Survey	Fish/Decapod Retained for Potential Chemistry	Fish Retained for Heath Assessment
LPR2N-A	Crab Trap	590310	692957	2	6	
LPR2N-B	Crab Trap	590365	693000		6	
LPR2N-C	Crab Trap	590422	693046		9	
LPR2O-A	Eel Trap	596832	695194	5	1	
LPR2O-B	Eel Trap	596837	695196	8	3	1
LPR2O-C	Eel Trap	596813	695207	5	4	
LPR2P-A	Eel Trap	594464	695224	8		
LPR2P-B	Eel Trap	594418	695228	9		
LPR2P-C	Eel Trap	594383	695204	8		
LPR2Q-A	Eel Trap	590476	693104	8		
LPR2Q-B	Eel Trap	590510	693154	9		
LPR2Q-C	Eel Trap	590548	693209	8		
LPR2R-A	Dip Net	596083	695248	1		3
LPR3A-A	Minnow Trap	588537	692671	1	1	
LPR3A-B	Minnow Trap	588561	692644	1	2	
LPR3A-C	Minnow Trap	588560	692660		3	
LPR3B-A	Minnow Trap	587086	692516	2		
LPR3B-B	Minnow Trap	587129	692517	1	3	
LPR3C-A	Minnow Trap	585170	694440	2		
LPR3C-C	Minnow Trap	585157	694491	2	3	
LPR3F-A	Crab Trap	584943	698212		4	
LPR3F-B	Crab Trap	584935	698184	2	4	
LPR3F-C	Crab Trap	584937	698223	2	3	
LPR3G-A	Crab Trap	584687	696034		4	
LPR3G-B	Crab Trap	584695	696006		5	
LPR3G-C	Crab Trap	584706	695966		6	
LPR3H-A	Crab Trap	585660	694238		6	
LPR3H-B	Crab Trap	585655	694258		2	
LPR3H-C	Crab Trap	585642	694274		2	
LPR3I-A	Eel Trap	585101	694752	2	2	
LPR3I-B	Eel Trap	585107	694727	1	2	
LPR3I-C	Eel Trap	585113	694700	3		
LPR3J-A	Eel Trap	585077	695935		1	
LPR3J-B	Eel Trap	585072	695956		3	
LPR3J-C	Eel Trap	585057	695993	1	2	
LPR3K-A	Eel Trap	584668	698342	1	3	
LPR3K-B	Eel Trap	584666	698315		2	
LPR3K-C	Eel Trap	584662	698283	1	5	
LPR3L-A	Trotline	585034	698912		2	
LPR3L-B	Trotline	585019	698886		3	
LPR3L-C	Trotline	584991	698910	2	3	
LPR3M-A	Gillnet	584798	697881	5	41	1
LPR3N-A	Gillnet	584921	695554	8	30	
LPR3O-A	Gillnet	588368	692495	14	90	7
LPR3P-A	Trotline	588105	692248		1	
LPR3P-B	Trotline	588111	692223	1	2	
LPR3P-C	Trotline	588161	692285		2	
LPR3Q-A	Trotline	585049	694994		1	
LPR3Q-B	Trotline	585068	694984		3	
LPR3Q-C	Trotline	585084	694997		1	
LPR4C-B	Minnow Trap	586719	704097		1	
LPR4D-A	Minnow Trap	587489	705720	2		
LPR4D-B	Minnow Trap	587496	705790		1	
LPR4D-C	Minnow Trap	587572	705839	2		
LPR4F-A	Crab Trap	587283	705973		1	
LPR4F-B	Crab Trap	587313	706034		3	
LPR4F-C	Crab Trap	587352	706120	1	5	
LPR4G-A	Crab Trap	586996	704092		4	
LPR4G-B	Crab Trap	587032	704128		7	
LPR4G-C	Crab Trap	587029	704104	1	2	
LPR4H-A	Crab Trap	585274	700807		6	
LPR4H-B	Crab Trap	585272	700811		4	
LPR4H-C	Crab Trap	585266	700764		3	
LPR4I-B	Eel Trap	585249	700695	1		

Table A5. Coordinates of Sampling Locations where Specimens Caught

Trap ID	Collection Method	Final Easting	Final Northing	Number of Specimens		
				Specimens for Community Survey	Fish/Decapod Retained for Potential Chemistry	Fish Retained for Heath Assessment
LPR4I-C	Eel Trap	585243	700671		1	
LPR4J-B	Eel Trap	586874	703850	1		
LPR4J-C	Eel Trap	586871	703813	1	1	
LPR4L-A	Gillnet	585166	700324	5	15	
LPR4M-A	Trotline	585151	701600	2	1	
LPR4M-B	Trotline	585118	701504	1	3	
LPR4M-C	Trotline	585181	701661		2	
LPR4N-A	Trotline	587156	704379		3	
LPR4N-B	Trotline	587082	704273	1		
LPR4N-C	Trotline	587180	704463	2	2	
LPR4O-A	Gillnet	587268	705741	4	10	
LPR4P-A	Gillnet	588651	707444	2	11	
LPR4Q-A	Trotline	589249	708215		3	
LPR4Q-C	Trotline	589188	708184	1	1	
LPR4R-A	Boat Electrofishing	587094	705442	4	8	
LPR4S-A	Boat Electrofishing	588168	706783	2	18	2
LPR4T-A	Boat Electrofishing	589042	707878	2	18	
LPR5A-A	Minnow Trap	589448	709268		5	1
LPR5A-B	Minnow Trap	589436	709275			2
LPR5A-C	Minnow Trap	589416	709238		2	
LPR5B-B	Minnow Trap	590234	712386		1	1
LPR5B-C	Minnow Trap	590244	712406		2	
LPR5C-C	Minnow Trap	592011	717746		1	
LPR5E-A	Gillnet	589795	711734	3	16	
LPR5F-A	Trotline	589948	711839		2	
LPR5F-B	Trotline	589880	711711	3	3	
LPR5F-C	Trotline	589980	711904	1	2	
LPR5G-A	Gillnet	591330	714199	5	7	
LPR5H-A	Trotline	591608	715061	1	2	
LPR5H-B	Trotline	591553	714981		2	
LPR5H-C	Trotline	591631	715124		3	
LPR5I-A	Gillnet	591812	718376	2	6	
LPR5J-A	Trotline	592097	717356		2	
LPR5J-B	Trotline	592143	717261		2	
LPR5J-C	Trotline	592082	717440	2	2	
LPR5K-B	Crab Trap	589628	708970	1	1	
LPR5L-B	Eel Trap	589629	709115		1	
LPR5M-A	Crab Trap	590284	712972		4	
LPR5M-B	Crab Trap	590294	712998		6	
LPR5M-C	Crab Trap	590300	713002		4	
LPR5O-A	Crab Trap	591814	717645		9	
LPR5O-B	Crab Trap	591812	717668		10	
LPR5O-C	Crab Trap	591810	717693		3	
LPR5P-A	Eel Trap	591788	717782			1
LPR5P-B	Eel Trap	591778	717795	1	1	
LPR5Q-A	Boat Electrofishing	592183	717297	4	45	1
LPR5R-A	Boat Electrofishing	592455	716313	2	31	2
LPR5S-A	Boat Electrofishing	589702	711831	6	18	
LPR5T-A	Boat Electrofishing	589609	709404	3	25	1
LPR6A-C	Minnow Trap	592584	722334	1		
LPR6B-B	Minnow Trap	593382	723296		1	
LPR6B-C	Minnow Trap	593417	723324	1		
LPR6C-A	Minnow Trap	594226	723825		1	
LPR6C-C	Minnow Trap	594285	723846			1
LPR6D-C	Minnow Trap	595166	724121	1		
LPR6F-A	Crab Trap	592579	722367	1	20	
LPR6F-B	Crab Trap	592587	722410	1	7	
LPR6F-C	Crab Trap	592594	722454		1	
LPR6G-A	Crab Trap	593235	723579		14	
LPR6G-B	Crab Trap	593267	723582		3	
LPR6G-C	Crab Trap	593262	723569		9	
LPR6H-A	Crab Trap	595232	724124		5	
LPR6H-B	Crab Trap	595283	724160	1	6	1
LPR6I-A	Crayfish Trap	592606	722494			1

Table A5. Coordinates of Sampling Locations where Specimens Caught

Trap ID	Collection Method	Final Easting	Final Northing	Number of Specimens		
				Specimens for Community Survey	Fish/Decapod Retained for Potential Chemistry	Fish Retained for Heath Assessment
LPR6I-B	Crayfish Trap	592600	722532	1	2	
LPR6J-A	Crayfish Trap	593319	723608		1	
LPR6J-C	Crayfish Trap	593402	723629		1	1
LPR6K-A	Crayfish Trap	595459	724229		1	
LPR6L-A	Gillnet	596201	724678	2	19	3
LPR6M-A	Gillnet	594051	723740	1	11	1
LPR6N-A	Gillnet	592325	722258	9	24	2
LPR6O-A	Trotline	596688	725981		1	
LPR6O-B	Trotline	596678	725967	1	1	
LPR6O-C	Trotline	596678	725904			1
LPR6P-A	Trotline	595771	724220	1	5	
LPR6P-B	Trotline	595841	724267	1		
LPR6P-C	Trotline	595891	724319		1	1
LPR6Q-A	Trotline	592194	721861		1	1
LPR6Q-B	Trotline	592201	721923	1	2	
LPR6R-A	Trotline	593804	723468		1	
LPR6R-B	Trotline	593857	723476		2	
LPR6R-C	Trotline	593899	723497	1	2	
LPR6S-A	Trotline	592481	722901	1	3	
LPR6S-B	Trotline	592495	722923		1	
LPR6S-C	Trotline	592503	722956	1	1	
LPR6V-A	Boat Electrofishing	592459	721585		1	
LPR7A-A	Minnow Trap	596648	728976	1		
LPR7A-C	Minnow Trap	596769	728955	2		
LPR7B-B	Minnow Trap	596736	729280	1		
LPR7C-A	Minnow Trap	596686	733029	3		
LPR7C-B	Minnow Trap	596697	733065	2	1	
LPR7D-B	Minnow Trap	597441	734864		1	
LPR7E-A	Minnow Trap	597316	735371	1	1	
LPR7E-C	Minnow Trap	597308	735334	1	1	
LPR7F-A	Crab Trap	597445	734965		6	
LPR7F-B	Crab Trap	597453	734999		1	
LPR7F-C	Crab Trap	597452	735017		8	1
LPR7G-A	Crab Trap	597342	735289		9	
LPR7G-B	Crab Trap	597342	735269		5	
LPR7G-C	Crab Trap	597339	735250		13	
LPR7H-A	Crab Trap	596716	728849		2	1
LPR7H-B	Crab Trap	596780	728831		7	
LPR7H-C	Crab Trap	596737	728804		1	
LPR7I-A	Crayfish Trap	597472	735056		2	
LPR7I-B	Crayfish Trap	597479	735092		1	
LPR7I-C	Crayfish Trap	597496	735115		1	
LPR7J-B	Crayfish Trap	597335	735453		2	
LPR7J-C	Crayfish Trap	597338	735473		1	
LPR7K-A	Crayfish Trap	596730	728805		2	
LPR7K-C	Crayfish Trap	596772	728710		2	
LPR7L-A	Gillnet	597481	735489		37	1
LPR7M-A	Gillnet	596952	728472	4	21	
LPR7N-A	Trotline	597320	735075	3	1	
LPR7N-B	Trotline	597329	735030		1	
LPR7N-C	Trotline	597348	735158	1		
LPR7O-A	Trotline	596946	733355		1	
LPR7O-C	Trotline	596980	733527		1	
LPR7P-B	Trotline	596286	731502		1	
LPR7P-C	Trotline	596325	731594		1	
LPR7Q-A	Trotline	596587	729111		1	
LPR7Q-C	Trotline	596531	729221		2	
LPR7R-A	Boat Electrofishing	597139	734602			1
LPR7U-A	Boat Electrofishing	596913	728915			2
LPR8A-A	Minnow Trap	597559	737849	1		
LPR8A-C	Minnow Trap	597558	737808		1	
LPR8D-A	Minnow Trap	599182	741745		2	
LPR8D-C	Minnow Trap	599151	741744	1		
LPR8F-A	Minnow Trap	596908	745770	2	1	

Table A5. Coordinates of Sampling Locations where Specimens Caught

Trap ID	Collection Method	Final Easting	Final Northing	Number of Specimens		
				Specimens for Community Survey	Fish/Decapod Retained for Potential Chemistry	Fish Retained for Heath Assessment
LPR8F-B	Minnow Trap	596950	745766	1		
LPR8G-B	Crayfish Trap	599034	741833	1		
LPR8H-A	Crayfish Trap	597535	737793		2	
LPR8H-B	Crayfish Trap	597536	737784	1		
LPR8I-B	Crayfish Trap	597810	744583	1		
LPR8J-A	Crab Trap	599110	741769		1	
LPR8J-B	Crab Trap	599098	741776		5	
LPR8J-C	Crab Trap	599083	741795		2	
LPR8K-A	Crab Trap	597509	737734	1	4	
LPR8K-B	Crab Trap	597504	737722		11	
LPR8K-C	Crab Trap	597505	737709		4	
LPR8L-A	Crab Trap	597798	744553		2	
LPR8M-A	Crab Trap	597014	745965	1	2	
LPR8M-B	Crab Trap	597003	745977	1	1	
LPR8P-A	Trotline	600701	738021	1		
LPR8P-B	Trotline	600758	737920	1		
LPR8P-C	Trotline	600715	737892	2		
LPR8Q-C	Trotline	599236	737597	1	1	
LPR8R-A	Gillnet	600828	738621	6	21	2
LPR8S-A	Gillnet	597833	738329	1	33	
LPR8T-C	Crayfish Trap	596976	745970	2		
LPR8U-A	Boat Electrofishing	600528	737366	12	27	2
LPR8V-A	Boat Electrofishing	599755	740370	8	77	3
LPR8W-A	Boat Electrofishing	599277	741575	10	23	5
LPR8X-A	Boat Electrofishing	599354	741619	8	26	4
LPR8Y-A	Backpack Electrofishing	596961	746132	9	111	1
LPR8Z-A	Backpack Electrofishing	595612	746920	7	392	5

Table 1. Summary of proposed white perch - REVISED

Species	Reach	RM	Location (s)	Sample ID (tissue type 1)	Sample ID (tissue type 2)	Estimated Mass			n	Notes
						Fillet (g)	Carcass (g)	Whole body mass (g)		
White perch	1	RM 0 - RM 2	LPR1G		LPR1-MAWB-Ind138			220	1	
White perch	1	RM 0 - RM 2	LPR1J	LPR1-MAFT-Ind145	LPR1-MACT-Ind145	181	363		1	
White perch	1	RM 0 - RM 2	LPR1J	LPR1-MAFT-Comp01		139			3	
White perch	2	RM 2 - RM 4	LPR2H		LPR2-MAWB-Ind158			272	1	
White perch	3	RM 4 - RM 6	LPR3G	LPR3-MAFT-Comp02		149			6	EPA added sample 6/7/10
White perch	3	RM 4 - RM 6	LPR3M	LPR3-MAFT-Comp03		156			7	
White perch	3	RM 4 - RM 6	LPR3M	LPR3-MAFT-Comp04		147			5	
White perch	3	RM 4 - RM 6	LPR3N	LPR3-MAFT-Comp05		139			6	EPA added sample 6/7/10
White perch	3	RM 4 - RM 6	LPR3O		LPR3-MAWB-Comp06			272	4	NEW CPG-added sample
White perch	3	RM 4 - RM 6	LPR3O	LPR3-MAFT-Comp07		152			3	
White perch	3	RM 4 - RM 6	LPR3O	LPR3-MAFT-Comp08		167			5	
White perch	3	RM 4 - RM 6	LPR3O		LPR3-MAWB-Comp09			250	3	CPG added fish to sample to increase mass
White perch	3	RM 4 - RM 6	LPR3O		LPR3-MAWB-Comp10			348	4	CPG added fish to sample to increase mass
White perch	3	RM 4 - RM 6	LPR3O		LPR3-MAWB-Comp11			378	5	NEW CPG-added sample
White perch	3	RM 4 - RM 6	LPR3O		LPR3-MAWB-Comp12			282	4	NEW CPG-added sample
White perch	3	RM 4 - RM 6	LPR3O	LPR3-MAFT-Comp13		167			7	NEW CPG-added sample
White perch	3	RM 4 - RM 6	LPR3O		LPR3-MAWB-Comp30			374	6	NEW CPG-added sample
White perch	4	RM 6 - RM 8	LPR4P		LPR4-MAWB-Comp14			274	2	
White perch	4	RM 6 - RM 8	LPR4R		LPR4-MAWB-Comp15 ^a			176	4	
White perch	4	RM 6 - RM 8	LPR4S	LPR4-MAFT-Comp16		154			5	NEW CPG-added sample
White perch	4	RM 6 - RM 8	LPR4T	LPR4-MAFT-Comp17		225			7	CPG added fish to sample to increase mass
White perch	5	RM 8 - RM 10	LPR5E, 5S ^b		LPR5-MAWB-Comp18			390	5	
White perch	5	RM 8 - RM 10	LPR5I		LPR5-MAWB-Comp19			198	3	NEW CPG-added sample
White perch	5	RM 8 - RM 10	LPR5R	LPR5-MAFT-Comp20		172			3	
White perch	5	RM 8 - RM 10	LPR5R	LPR5-MAFT-Comp21		232			8	EPA added sample 6/7/10
White perch	5	RM 8 - RM 10	LPR5T	LPR5-MAFT-Comp22 ^a		149			8	
White perch	5	RM 8 - RM 10	LPR5T		LPR5-MAWB-Comp23 ^a			256	8	
White perch	6	RM 10 - RM 12	LPR6L	LPR6-MAFT-Ind122		210			1	
White perch	6	RM 10 - RM 12	LPR6Q		LPR6-MAWB-Ind128			136	1	
White perch	6	RM 10 - RM 12	LPR6N, 6R ^c	LPR6-MAFT-Comp24		155			2	
White perch	7	RM 12 - RM 14	LPR7J, 7N ^d		LPR7-MAWB-Comp25			176	3	
White perch	7	RM 12 - RM 14	LPR7Q		LPR7-MAWB-Ind123			202	1	
White perch	8	RM 14 - RM 17.4	LPR8V	LPR8-MAFT-Comp26		157			5	
White perch	8	RM 14 - RM 17.4	LPR8V	LPR8-MAFT-Comp27		148			6	
White perch	8	RM 14 - RM 17.4	LPR8V		LPR8-MAWB-Comp28			172	3	
White perch	8	RM 14 - RM 17.4	LPR8V		LPR8-MAWB-Comp29			198	3	
White perch	8	RM 14 - RM 17.4	LPR8U	LPR8-MAFT-Comp31		141			4	NEW CPG-added sample
White perch	8	RM 14 - RM 17.4	LPR8V		LPR8-MAWB-Comp32			164	3	NEW CPG-added sample

^a Sample includes fish that are < 152 mm.^b LPR5E and LPR5S are adjacent to one another.^c LPR6N and LPR6Q within ~0.5 miles of each other^d LPR7J and LPR7N are adjacent to one another.

Shaded cells indicate the samples targeted for QC analysis

Table 2. Proposed white perch samples for analysis - REVISED

Species	Reach	Location ID	Trap ID	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	EPA reference No.	Sample ID (tissue type 1)	Sample ID (tissue type 2)	Sample Type	EPA sample	Notes	Reason for exclusion from composite?	Specimen Comments
White perch	LPR1	LPR1G	LPR1G-B	LPR1G-MA138	220	73	255	1		LPR1-MAWB-Ind138	individual	WB			
White perch	LPR1	LPR1J	LPR1J-A	LPR1J-MA139	148	49	218	2	LPR1-MAFT-Comp01		composite	fillet			
White perch	LPR1	LPR1J	LPR1J-A	LPR1J-MA140	142	47	197	2	LPR1-MAFT-Comp01		composite	fillet			
White perch	LPR1	LPR1J	LPR1J-A	LPR1J-MA141	128	43	205	2	LPR1-MAFT-Comp01		composite	fillet			
White perch	LPR1	LPR1J	LPR1J-A	LPR1J-MA145	544	181	321	3	LPR1-MAFT-Ind145	LPR1-MACT-Ind145	individual	fillet/carcass			
White perch	LPR1	LPR1P	LPR1P-B	LPR1P-MA154	4	1	56				composite	fillet		< 152 mm	
White perch	LPR1	LPR1Q	LPR1Q-A	LPR1Q-MA147	1	0	54				composite	fillet		< 152 mm	
White perch	LPR1	LPR1Q	LPR1Q-A	LPR1Q-MA150	5	2	80				composite	fillet		< 152 mm	
White perch	LPR1	LPR1Q	LPR1Q-B	LPR1Q-MA153	6	2	70				composite	fillet		< 152 mm	
White perch	LPR1	LPR1Q	LPR1Q-B	LPR1Q-MA155	0.9	0	44				composite	fillet		< 152 mm	
White perch	LPR2	LPR2B	LPR2B-C	LPR2B-MA161	3	1	60							< 152 mm	
White perch	LPR2	LPR2C	LPR2C-B	LPR2C-MA149	0.7	0	47				composite	fillet		< 152 mm	
White perch	LPR2	LPR2C	LPR2C-B	LPR2C-MA151	2	1	61				composite	fillet		< 152 mm	
White perch	LPR2	LPR2C	LPR2C-A	LPR2C-MA163	1	0	48				composite	fillet		< 152 mm	
White perch	LPR2	LPR2C	LPR2C-A	LPR2C-MA164	1	0	51				composite	fillet		< 152 mm	
White perch	LPR2	LPR2E	LPR2E-B	LPR2E-MA142	0.5	0	38				composite	fillet		< 152 mm	
White perch	LPR2	LPR2E	LPR2E-A	LPR2E-MA159	6	2	65				composite	fillet		< 152 mm	
White perch	LPR2	LPR2H	LPR2H-C	LPR2H-MA158	272	91	262	4		LPR2-MAWB-Ind158	individual	WB			
White perch	LPR2	LPR2I	LPR2I-A	LPR2I-MA157	90	30	182						only 1 individual selected from Reach 2 for analysis		
White perch	LPR2	LPR2O	LPR2O-C	LPR2O-MA143	1.5	1	52				composite	fillet		< 152 mm	
White perch	LPR2	LPR2O	LPR2O-C	LPR2O-MA144	3	1	71				composite	fillet		< 152 mm	
White perch	LPR2	LPR2O	LPR2O-C	LPR2O-MA146	0.2	0	38				composite	fillet		< 152 mm	
White perch	LPR2	LPR2O	LPR2O-B	LPR2O-MA148	1	0	55				composite	fillet		< 152 mm	
White perch	LPR2	LPR2O	LPR2O-A	LPR2O-MA152	0.5	0	42				composite	fillet		< 152 mm	
White perch	LPR2	LPR2O	LPR2O-C	LPR2O-MA156	1.1	0	51				composite	fillet		< 152 mm	
White perch	LPR2	LPR2O	LPR2O-B	LPR2O-MA160	0.7	0	44				composite	fillet		< 152 mm	
White perch	LPR2	LPR2O	LPR2O-B	LPR2O-MA162	1.5	1	47				composite	fillet		< 152 mm	
White perch	LPR3	LPR3A	LPR3A-C	LPR3A-MA018	4	1	74				composite	fillet		< 152 mm	
White perch	LPR3	LPR3A	LPR3A-C	LPR3A-MA091	1	0	65				composite	fillet		< 152 mm	
White perch	LPR3	LPR3A	LPR3A-C	LPR3A-MA093	1	0	58				composite	fillet		< 152 mm	parasite fell off
White perch	LPR3	LPR3A	LPR3A-A	LPR3A-MA104	4	1	67				composite	fillet		< 152 mm	
White perch	LPR3	LPR3A	LPR3A-B	LPR3A-MA105	4	1	62				composite	fillet		< 152 mm	
White perch	LPR3	LPR3A	LPR3A-B	LPR3A-MA106	4	1	68				composite	fillet		< 152 mm	
White perch	LPR3	LPR3B	LPR3B-B	LPR3B-MA039	1	0	54							< 152 mm	
White perch	LPR3	LPR3B	LPR3B-B	LPR3B-MA040	6	2	74		</						

Table 2. Proposed white perch samples for analysis - REVISED

Species	Reach	Location ID	Trap ID	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	EPA reference No.	Sample ID (tissue type 1)	Sample ID (tissue type 2)	Sample Type	EPA sample	Notes	Reason for exclusion from composite?	Specimen Comments
White perch	LPR3	LPR3M	LPR3M-A	LPR3M-MA011	62	21	158	5	LPR3-MAFT-Comp03		composite	fillet			
White perch	LPR3	LPR3M	LPR3M-A	LPR3M-MA012	62	21	160	5	LPR3-MAFT-Comp03		composite	fillet			
White perch	LPR3	LPR3M	LPR3M-A	LPR3M-MA014	66	22	160	5	LPR3-MAFT-Comp03		composite	fillet			
White perch	LPR3	LPR3M	LPR3M-A	LPR3M-MA017	98	33	182	5	LPR3-MAFT-Comp03		composite	fillet			
White perch	LPR3	LPR3M	LPR3M-A	LPR3M-MA025	58	19	163	5	LPR3-MAFT-Comp03		composite	fillet			missing eye
White perch	LPR3	LPR3M	LPR3M-A	LPR3M-MA026	65	22	108							< 152 mm	damaged opercula likely from gill net
White perch	LPR3	LPR3M	LPR3M-A	LPR3M-MA027	62	21	171	5	LPR3-MAFT-Comp03		composite	fillet			
White perch	LPR3	LPR3M	LPR3M-A	LPR3M-MA028	78	26	177	6	LPR3-MAFT-Comp04		composite	fillet			missing right eye
White perch	LPR3	LPR3M	LPR3M-A	LPR3M-MA029	86	29	184	6	LPR3-MAFT-Comp04		composite	fillet			
White perch	LPR3	LPR3M	LPR3M-A	LPR3M-MA030	60	20	162	5	LPR3-MAFT-Comp03		composite	fillet			
White perch	LPR3	LPR3M	LPR3M-A	LPR3M-MA031	76	25	177	6	LPR3-MAFT-Comp04		composite	fillet			caudal fin partially missing
White perch	LPR3	LPR3M	LPR3M-A	LPR3M-MA032	108	36	186	6	LPR3-MAFT-Comp04		composite	fillet			
White perch	LPR3	LPR3M	LPR3M-A	LPR3M-MA037	92	31	198	6	LPR3-MAFT-Comp04		composite	fillet			
White perch	LPR3	LPR3N	LPR3N-A	LPR3N-MA041	54	18	152	104	LPR3-MAFT-Comp05		composite	fillet	**EPA added sample 6/7/10 (Comp 05)		
White perch	LPR3	LPR3N	LPR3N-A	LPR3N-MA092	84	28	174	104	LPR3-MAFT-Comp05		composite	fillet	**EPA added sample 6/7/10 (Comp 05)		
White perch	LPR3	LPR3N	LPR3N-A	LPR3N-MA095	66	22	159	104	LPR3-MAFT-Comp05		composite	fillet	**EPA added sample 6/7/10 (Comp 05)		
White perch	LPR3	LPR3N	LPR3N-A	LPR3N-MA096	78	26	169	104	LPR3-MAFT-Comp05		composite	fillet	**EPA added sample 6/7/10 (Comp 05)		
White perch	LPR3	LPR3N	LPR3N-A	LPR3N-MA097	56	19	159	104	LPR3-MAFT-Comp05		composite	fillet	**EPA added sample 6/7/10 (Comp 05)		
White perch	LPR3	LPR3N	LPR3N-A	LPR3N-MA098	78	26	176	104	LPR3-MAFT-Comp05		composite	fillet	**EPA added sample 6/7/10 (Comp 05)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA001	56	19	160	201		LPR3-MAWB-Comp06	composite	WB	NEW CPG-added sample (Comp06)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA002	82	27	176	201		LPR3-MAWB-Comp06	composite	WB	NEW CPG-added sample (Comp06)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA003	76	25	174	201		LPR3O-MA003	composite	WB	NEW CPG-added sample (Comp06)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA004	58	19	163	201		LPR3-MAWB-Comp06	composite	WB	NEW CPG-added sample (Comp06)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA005	50	17	149							< 152 mm	
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA048	190	63	226	7	LPR3-MAFT-Comp07		composite	fillet			
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA049	88	29	170	10		LPR3-MAWB-Comp10	composite	WB			
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA050	100	33	187	8	LPR3-MAFT-Comp08		composite	fillet			
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA052	156	52	211	7	LPR3-MAFT-Comp07		composite	fillet			
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA053	82	27	175	203		LPR3-MAWB-Comp11	composite	WB	NEW CPG-added sample (Comp11)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA054	70	23	162	203		LPR3-MAWB-Comp11	composite	WB	NEW CPG-added sample (Comp11)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA055	80	27	173	203		LPR3-MAWB-Comp11	composite	WB	NEW CPG-added sample (Comp11)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA056	70	23	170	7							
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA057	82	27	178	9		LPR3-MAWB-Comp09	composite	WB	CPG added fish to sample to increase mass (Comp09)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA058	84	28	173	9		LPR3-MAWB-Comp09	composite	WB			
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA059	98	33	180	8	LPR3-MAFT-Comp08		composite	fillet			
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA060	64	21	161	206		LPR3-MAWB-Comp12	composite	WB	NEW CPG-added sample (Comp12)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA061	80	27	180	206		LPR3-MAWB-Comp12	composite	WB	NEW CPG-added sample (Comp12)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA062	98	33	188	8	LPR3-MAFT-Comp08		composite	fillet			
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA064	76	25	175	206		LPR3-MAWB-Comp12	composite	WB	NEW CPG-added sample (Comp12)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA065	106	35	190	8	LPR3-MAFT-Comp08		composite	fillet			
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA066	62	21	162	206		LPR3-MAWB-Comp12	composite	WB	NEW CPG-added sample (Comp12)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA067	84	28	182	9		LPR3-MAWB-Comp09	composite	WB			Eroded caudal fin, damaged left operculum
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA068	76	25	178	203		LPR3-MAWB-Comp11	composite	WB	NEW CPG-added sample (Comp11)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA069	70	23	165	203		LPR3-MAWB-Comp11	composite	WB	NEW CPG-added sample (Comp11)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA070	110	37	192	7	LPR3-MAFT-Comp07		composite	fillet			Erosion of caudal fin; hemorrhaging of ventral surface
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA071	62	21	158	207		LPR3-MAWB-Comp30	composite	WB	NEW CPG-added sample (Comp30)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA072	60	20	162	207		LPR3-MAWB-Comp30	composite	WB	NEW CPG-added sample (Comp30)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA073	80	27	171	10		LPR3-MAWB-Comp10	composite	WB	CPG added fish to sample to increase mass (Comp10)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA074	100	33	188	8	LPR3-MAFT-Comp08		composite	fillet			
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA075	60	20	169	207		LPR3-MAWB-Comp30	composite	WB	NEW CPG-added sample (Comp30)		Eroded caudal fin
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA076	65	22	159	207		LPR3-MAWB-Comp30	composite	WB	NEW CPG-added sample (Comp30)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA077	70	23	171	207		LPR3-MAWB-Comp30	composite	WB	NEW CPG-added sample (Comp30)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA078	47	16	146							< 152 mm	
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA079	95	32	182	10		LPR3-MAWB-Comp10	composite	WB			Left pectoral fin missing
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA080	57	19	159	207		LPR3-MAWB-Comp30	composite	WB	NEW CPG-added sample (Comp30)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA081	85	28	177	10		LPR3-MAWB-Comp10	composite	WB	CPG added fish to sample to increase mass (Comp10)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA082	62	21	167	202	LPR3-MAFT-Comp13		composite	fillet	NEW CPG-added sample (Comp13)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA083	64	21	166	202	LPR3-MAFT-Comp13		composite	fillet	NEW CPG-added sample (Comp13)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA084	78	26	175	202	LPR3-MAFT-Comp13		composite	fillet	NEW CPG-added sample (Comp13)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA085	72	24	178	202	LPR3-MAFT-Comp13		composite	fillet	NEW CPG-added sample (Comp13)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA086	66	22	172	202	LPR3-MAFT-Comp13		composite	fillet	NEW CPG-added sample (Comp13)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA102	68	23	166	202	LPR3-MAFT-Comp13		composite	fillet	NEW CPG-added sample (Comp13)		
White perch	LPR3	LPR3O	LPR3O-A	LPR3O-MA103	92	31	185	202	LPR3-MAFT-Comp13		composite	fillet	NEW CPG-added sample (Comp13)		Parasite attached
White perch	LPR4	LPR4H	LPR4H-B	LPR4H-MA094	40	13	136							< 152 mm	
White perch	LPR4	LPR4H	LPR4H-A	LPR4H-MA107	4	1	70							< 152 mm	
White perch	LPR4	LPR4H	LPR4H-C	LPR4H-MA113	32	11	125							< 152 mm	

Table 2. Proposed white perch samples for analysis - REVISED

Species	Reach	Location ID	Trap ID	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	EPA reference No.	Sample ID (tissue type 1)	Sample ID (tissue type 2)	Sample Type	EPA sample	Notes	Reason for exclusion from composite?	Specimen Comments
White perch	LPR4	LPR4I	LPR4I-C	LPR4I-MA116	1	0	43							< 152 mm	
White perch	LPR4	LPR4L	LPR4L-A	LPR4L-MA215	58	19	159						insufficient mass from location		
White perch	LPR4	LPR4P	LPR4P-A	LPR4P-MA193	84	28	183	12		LPR4-MAWB-Comp14	composite	WB			
White perch	LPR4	LPR4P	LPR4P-A	LPR4P-MA199	190	63	224	12		LPR4-MAWB-Comp14	composite	WB			
White perch	LPR4	LPR4R	LPR4R-A	LPR4R-MA216	34	11	134	11		LPR4-MAWB-Comp15	composite	WB	sample includes fish < 152 mm	< 152 mm	
White perch	LPR4	LPR4R	LPR4R-A	LPR4R-MA217	56	19	155	11		LPR4-MAWB-Comp15	composite	WB			
White perch	LPR4	LPR4R	LPR4R-A	LPR4R-MA218	38	13	138	11		LPR4-MAWB-Comp15	composite	WB	sample includes fish < 152 mm	< 152 mm	
White perch	LPR4	LPR4R	LPR4R-A	LPR4R-MA219	48	16	150	11		LPR4-MAWB-Comp15	composite	WB	sample includes fish < 152 mm	< 152 mm	
White perch	LPR4	LPR4S	LPR4S-A	LPR4S-MA220	30	10	124							< 152 mm	
White perch	LPR4	LPR4S	LPR4S-A	LPR4S-MA221	78	26	162	204	LPR4-MAFT-Comp16		composite	fillet	NEW CPG-added sample (Comp16)		
White perch	LPR4	LPR4S	LPR4S-A	LPR4S-MA222	38	13	139							< 152 mm	
White perch	LPR4	LPR4S	LPR4S-A	LPR4S-MA223	62	21	152	204	LPR4-MAFT-Comp16		composite	fillet	NEW CPG-added sample (Comp16)		
White perch	LPR4	LPR4S	LPR4S-A	LPR4S-MA224	66	22	166	204	LPR4-MAFT-Comp16		composite	fillet	NEW CPG-added sample (Comp16)		
White perch	LPR4	LPR4S	LPR4S-A	LPR4S-MA265	182	61	245	204	LPR4-MAFT-Comp16		composite	fillet	NEW CPG-added sample (Comp16)		
White perch	LPR4	LPR4S	LPR4S-A	LPR4S-MA266	74	25	171	204	LPR4-MAFT-Comp16		composite	fillet	NEW CPG-added sample (Comp16)		
White perch	LPR4	LPR4S	LPR4S-A	LPR4S-MA267	40	13	145							< 152 mm	
White perch	LPR4	LPR4T	LPR4T-A	LPR4T-MA225	134	45	209	13	LPR4-MAFT-Comp17		composite	fillet			
White perch	LPR4	LPR4T	LPR4T-A	LPR4T-MA226	36	12	137							< 152 mm	
White perch	LPR4	LPR4T	LPR4T-A	LPR4T-MA227	92	31	183	13	LPR4-MAFT-Comp17		composite	fillet			
White perch	LPR4	LPR4T	LPR4T-A	LPR4T-MA228	46	15	153	13	LPR4-MAFT-Comp17		composite	fillet	CPG added fish to sample to increase mass (Comp17)		
White perch	LPR4	LPR4T	LPR4T-A	LPR4T-MA229	40	13	144							< 152 mm	
White perch	LPR4	LPR4T	LPR4T-A	LPR4T-MA230	52	17	154							sample not available	
White perch	LPR4	LPR4T	LPR4T-A	LPR4T-MA231	78	26	160	13	LPR4-MAFT-Comp17		composite	fillet	CPG added fish to sample to increase mass (Comp17)		
White perch	LPR4	LPR4T	LPR4T-A	LPR4T-MA232	4	1	75							< 152 mm	
White perch	LPR4	LPR4T	LPR4T-A	LPR4T-MA249	1	0	43							< 152 mm	
White perch	LPR4	LPR4T	LPR4T-A	LPR4T-MA261	72	24	175	13	LPR4-MAFT-Comp17		composite	fillet			
White perch	LPR4	LPR4T	LPR4T-A	LPR4T-MA262	88	29	182	13	LPR4-MAFT-Comp17		composite	fillet			
White perch	LPR4	LPR4T	LPR4T-A	LPR4T-MA263	32	11	136							< 152 mm	
White perch	LPR4	LPR4T	LPR4T-A	LPR4T-MA264	166	55	227	13	LPR4-MAFT-Comp17		composite	fillet			
White perch	LPR5	LPR5A	LPR5A-A	LPR5A-MA117	0.5	0	41							< 152 mm	
White perch	LPR5	LPR5B	LPR5B-B	LPR5B-MA118	40	13	73							< 152 mm	
White perch	LPR5	LPR5E	LPR5E-A	LPR5E-MA197	60	20	155	14		LPR5-MAWB-Comp18	composite	WB	2 locations, adjacent		
White perch	LPR5	LPR5E	LPR5E-A	LPR5E-MA198	72	24	173	14		LPR5-MAWB-Comp18	composite	WB	2 locations, adjacent		Missing right eyeball
White perch	LPR5	LPR5E	LPR5E-A	LPR5E-MA214	52	17	156	14		LPR5-MAWB-Comp18	composite	WB	2 locations, adjacent		
White perch	LPR5	LPR5E	LPR5E-A	LPR5E-MA259	74	25	176	14		LPR5-MAWB-Comp18	composite	WB	2 locations, adjacent		
White perch	LPR5	LPR5G	LPR5G-A	LPR5G-MA110	64	21	159						insufficient mass from location		
White perch	LPR5	LPR5I	LPR5I-A	LPR5I-MA195	62	21	175	205		LPR5-MAWB-Comp19	composite	WB	NEW CPG-added sample (Comp19)		Missing right eyeball
White perch	LPR5	LPR5I	LPR5I-A	LPR5I-MA196	66	22	148							< 152 mm	Caudal fin eaten
White perch	LPR5	LPR5I	LPR5I-A	LPR5I-MA200	64	21	165	205		LPR5-MAWB-Comp19	composite	WB	NEW CPG-added sample (Comp19)		Missing left eyeball
White perch	LPR5	LPR5I	LPR5I-A	LPR5I-MA269	72	24	172	205		LPR5-MAWB-Comp19	composite	WB	NEW CPG-added sample (Comp19)		
White perch	LPR5	LPR5J	LPR5J-A	LPR5J-MA112	44	15	139							< 152 mm	
White perch	LPR5	LPR5K	LPR5K-B	LPR5K-MA115	4	1	61							< 152 mm	
White perch	LPR5	LPR5L	LPR5L-B	LPR5L-MA114	30	10	130							< 152 mm	
White perch	LPR5	LPR5M	LPR5M-C	LPR5M-MA111	38	13	136							< 152 mm	
White perch	LPR5	LPR5O	LPR5O-B	LPR5O-MA119	40	13	139							< 152 mm	
White perch	LPR5	LPR5Q	LPR5Q-A	LPR5Q-MA250	36	12	140							< 152 mm	
White perch	LPR5	LPR5Q	LPR5Q-A	LPR5Q-MA251	41	14	145							< 152 mm	
White perch	LPR5	LPR5Q	LPR5Q-A	LPR5Q-MA252	36	12	139							< 152 mm	
White perch	LPR5	LPR5R	LPR5R-A	LPR5R-MA201	294	98	240	15	LPR5-MAFT-Comp20		composite	fillet			
White perch	LPR5	LPR5R	LPR5R-A	LPR5R-MA202	138	46	203	107	LPR5-MAFT-Comp21		composite	fillet	**EPA added sample 6/7/10 (Comp 21)		
White perch	LPR5	LPR5R	LPR5R-A	LPR5R-MA203	130	43	196	107	LPR5-MAFT-Comp21		composite	fillet	**EPA added sample 6/7/10 (Comp 21)		
White perch	LPR5	LPR5R	LPR5R-A	LPR5R-MA204	58	19	161	107	LPR5-MAFT-Comp21		composite	fillet	**EPA added sample 6/7/10 (Comp 21)		
White perch	LPR5	LPR5R	LPR5R-A	LPR5R-MA205	48	16	154	107	LPR5-MAFT-Comp21		composite	fillet	**EPA added sample 6/7/10 (Comp 21)		
White perch	LPR5	LPR5R	LPR5R-A	LPR5R-MA206	62	21	166	107	LPR5-MAFT-Comp21		composite	fillet	**EPA added sample 6/7/10 (Comp 21)		
White perch	LPR5	LPR5R	LPR5R-A	LPR5R-MA207	80	27	175	107	LPR5-MAFT-Comp21		composite	fillet	**EPA added sample 6/7/10 (Comp 21)		
White perch	LPR5	LPR5R	LPR5R-A	LPR5R-MA208	32	11	138							< 152 mm	
White perch	LPR5	LPR5R	LPR5R-A	LPR5R-MA209	44	15	144							< 152 mm	
White perch	LPR5	LPR5R	LPR5R-A	LPR5R-MA210	28	9	128							< 152 mm	
White perch	LPR5	LPR5R	LPR5R-A	LPR5R-MA253	56	19	159	107	LPR5-MAFT-Comp21		composite	fillet	**EPA added sample 6/7/10 (Comp 21)		
White perch	LPR5	LPR5R	LPR5R-A	LPR5R-MA254	124	41	204	107	LPR5-MAFT-Comp21		composite	fillet	**EPA added sample 6/7/10 (Comp 21)		
White perch	LPR5	LPR5R	LPR5R-A	LPR5R-MA255	41	14	147							< 152 mm	
White perch	LPR5	LPR5R	LPR5R-A	LPR5R-MA256	144	48	220	15	LPR5-MAFT-Comp20		composite	fillet			
White perch	LPR5	LPR5R	LPR5R-A	LPR5R-MA257	78	26	178	15	LPR5-MAFT-Comp20		composite	fillet			
White perch	LPR5	LPR5R	LPR5R-A	LPR5R-MA258	26	9	127							< 152 mm	
White perch	LPR5	LPR5S	LPR5S-A	LPR5S-MA211	132	44	217	14		LPR5-MAWB-Comp18	composite	WB	2 locations, adjacent		
White perch	LPR5	LPR5S	LPR5S-A	LPR5S-MA212	36	12	132							< 152 mm	

Table 2. Proposed white perch samples for analysis - REVISED

Species	Reach	Location ID	Trap ID	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	EPA reference No.	Sample ID (tissue type 1)	Sample ID (tissue type 2)	Sample Type	EPA sample	Notes	Reason for exclusion from composite?	Specimen Comments
White perch	LPR5	LPR5S	LPR5S-A	LPR5S-MA213	32	11	135							< 152 mm	
White perch	LPR5	LPR5S	LPR5S-A	LPR5S-MA260	46	15	145							< 152 mm	
White perch	LPR5	LPR5T	LPR5T-A	LPR5T-MA233	72	24	164	16	LPR5-MAFT-Comp22		composite	fillet			
White perch	LPR5	LPR5T	LPR5T-A	LPR5T-MA234	80	27	179	16	LPR5-MAFT-Comp22		composite	fillet			
White perch	LPR5	LPR5T	LPR5T-A	LPR5T-MA235	42	14	133	17		LPR5-MAWB-Comp23	composite	WB	sample includes fish < 152 mm	< 152 mm	
White perch	LPR5	LPR5T	LPR5T-A	LPR5T-MA236	28	9	129	17		LPR5-MAWB-Comp23	composite	WB	sample includes fish < 152 mm	< 152 mm	
White perch	LPR5	LPR5T	LPR5T-A	LPR5T-MA237	46	15	136	16	LPR5-MAFT-Comp22		composite	fillet	sample includes fish < 152 mm	< 152 mm	
White perch	LPR5	LPR5T	LPR5T-A	LPR5T-MA238	32	11	131	17		LPR5-MAWB-Comp23	composite	WB	sample includes fish < 152 mm	< 152 mm	
White perch	LPR5	LPR5T	LPR5T-A	LPR5T-MA239	70	23	155	16	LPR5-MAFT-Comp22		composite	fillet			
White perch	LPR5	LPR5T	LPR5T-A	LPR5T-MA240	28	9	128	17		LPR5-MAWB-Comp23	composite	WB	sample includes fish < 152 mm	< 152 mm	
White perch	LPR5	LPR5T	LPR5T-A	LPR5T-MA241	40	13	135	16	LPR5-MAFT-Comp22		composite	fillet	sample includes fish < 152 mm	< 152 mm	
White perch	LPR5	LPR5T	LPR5T-A	LPR5T-MA242	36	12	131	17		LPR5-MAWB-Comp23	composite	WB	sample includes fish < 152 mm	< 152 mm	
White perch	LPR5	LPR5T	LPR5T-A	LPR5T-MA243	32	11	136	17		LPR5-MAWB-Comp23	composite	WB	sample includes fish < 152 mm	< 152 mm	
White perch	LPR5	LPR5T	LPR5T-A	LPR5T-MA244	54	18	147	16	LPR5-MAFT-Comp22		composite	fillet	sample includes fish < 152 mm	< 152 mm	
White perch	LPR5	LPR5T	LPR5T-A	LPR5T-MA245	28	9	123	17		LPR5-MAWB-Comp23	composite	WB	sample includes fish < 152 mm	< 152 mm	
White perch	LPR5	LPR5T	LPR5T-A	LPR5T-MA246	48	16	137	16	LPR5-MAFT-Comp22		composite	fillet	sample includes fish < 152 mm	< 152 mm	
White perch	LPR5	LPR5T	LPR5T-A	LPR5T-MA248	30	10	118	17		LPR5-MAWB-Comp23	composite	WB	sample includes fish < 152 mm	< 152 mm	
White perch	LPR5	LPR5T	LPR5T-A	LPR5T-MA247	36	12	136	16	LPR5-MAFT-Comp22		composite	fillet	sample includes fish < 152 mm	< 152 mm	
White perch	LPR6	LPR6G	LPR6G-C	LPR6G-MA129	44	15	144							< 152 mm	
White perch	LPR6	LPR6H	LPR6H-B	LPR6H-MA194	30	10	135							< 152 mm	
White perch	LPR6	LPR6H	LPR6H-A	LPR6H-MA268	58	19	165						insufficient mass from location		
White perch	LPR6	LPR6I	LPR6I-B	LPR6I-MA134	34	11	138							< 152 mm	
White perch	LPR6	LPR6L	LPR6L-A	LPR6L-MA122	630	210	315	18	LPR6-MAFT-Ind122		individual	fillet			
White perch	LPR6	LPR6N	LPR6N-A	LPR6N-MA120	206	69	242	20	LPR6-MAFT-Comp24		composite	fillet	2 locations; ~0.5 mile apart		
White perch	LPR6	LPR6N	LPR6N-A	LPR6N-MA131	76	25	180								
White perch	LPR6	LPR6Q	LPR6Q-A	LPR6Q-MA124	52	17	153								
White perch	LPR6	LPR6Q	LPR6Q-B	LPR6Q-MA128	136	45	216	19		LPR6-MAWB-Ind128	individual	WB			
White perch	LPR6	LPR6R	LPR6R-A	LPR6R-MA121	258	86	260	20	LPR6-MAFT-Comp24		composite	fillet	2 locations; ~0.5 mile apart		
White perch	LPR6	LPR6R	LPR6R-C	LPR6R-MA125	78	26	181								
White perch	LPR6	LPR6V	LPR6V-A	LPR6V-MA130	44	15	147							< 152 mm	
White perch	LPR7	LPR7G	LPR7G-B	LPR7G-MA133	36	12	140							< 152 mm	
White perch	LPR7	LPR7G	LPR7G-B	LPR7G-MA135	28	9	126							< 152 mm	
White perch	LPR7	LPR7J	LPR7J-C	LPR7J-MA127	70	23	170	21		LPR7-MAWB-Comp25	composite	WB	2 locations, adjacent		
White perch	LPR7	LPR7J	LPR7J-B	LPR7J-MA137	54	18	159	21		LPR7-MAWB-Comp25	composite	WB	2 locations, adjacent		
White perch	LPR7	LPR7K	LPR7K-A	LPR7K-MA136	32	11	127							< 152 mm	
White perch	LPR7	LPR7N	LPR7N-B	LPR7N-MA126	52	17	156	21		LPR7-MAWB-Comp25	composite	WB	2 locations, adjacent		
White perch	LPR7	LPR7Q	LPR7Q-C	LPR7Q-MA123	202	67	236	22		LPR7-MAWB-Ind123	individual	WB			
White perch	LPR7	LPR7Q	LPR7Q-A	LPR7Q-MA132	44	15	150							< 152 mm	
White perch	LPR8	LPR8U	LPR8U-A	LPR8U-MA168	130	43	215	208	LPR8-MAFT-Comp31		composite	fillet	NEW CPG-added sample (Comp31)		
White perch	LPR8	LPR8U	LPR8U-A	LPR8U-MA169	52	17	155	208	LPR8-MAFT-Comp31		composite	fillet	NEW CPG-added sample (Comp31)		
White perch	LPR8	LPR8U	LPR8U-A	LPR8U-MA170	44	15	143							< 152 mm	
White perch	LPR8	LPR8U	LPR8U-A	LPR8U-MA171	82	27	180	208	LPR8-MAFT-Comp31		composite	fillet	NEW CPG-added sample (Comp31)		
White perch	LPR8	LPR8U	LPR8U-A	LPR8U-MA172	38	13	139							< 152 mm	
White perch	LPR8	LPR8U	LPR8U-A	LPR8U-MA173	159	53	249	208	LPR8-MAFT-Comp31		composite	fillet	NEW CPG-added sample (Comp31)		
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA165	54	18	159	209		LPR8-MAWB-Comp32	composite	WB	NEW CPG-added sample (Comp32)		
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA167	128	43	212	23	LPR8-MAFT-Comp26		composite	fillet			
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA174	58	19	162	209		LPR8-MAWB-Comp32	composite	WB	NEW CPG-added sample (Comp32)		
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA175	72	24	176	24	LPR8-MAFT-Comp27		composite	fillet			
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA176	92	31	187	23	LPR8-MAFT-Comp26		composite	fillet			
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA177	80	27	180	24	LPR8-MAFT-Comp27		composite	fillet			
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA178	70	23	182	24	LPR8-MAFT-Comp27		composite	fillet			
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA179	80	27	185	23	LPR8-MAFT-Comp26		composite	fillet			
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA180	52	17	164	25		LPR8-MAWB-Comp28	composite	WB			
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA181	82	27	179	24	LPR8-MAFT-Comp27		composite	fillet			
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA182	60	20	169	25		LPR8-MAWB-Comp28	composite	WB			
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA183	86	29	187	23	LPR8-MAFT-Comp26		composite	fillet			
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA184	60	20	167	25		LPR8-MAWB-Comp28	composite	WB			
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA185	86	29	187	23	LPR8-MAFT-Comp26		composite	fillet			
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA186	62	21	173	26		LPR8-MAWB-Comp29	composite	WB			
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA187	70	23	175	24	LPR8-MAFT-Comp27		composite	fillet			
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA188	70	23	175	24	LPR8-MAFT-Comp27		composite	fillet			
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA189	70	23	175	26		LPR8-MAWB-Comp29	composite	WB			
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA190	42	14	149							< 152 mm	
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA191	66	22	175	26		LPR8-MAWB-Comp29	composite	WB			
White perch	LPR8	LPR8V	LPR8V-A	LPR8V-MA192	52	17	162	209		LPR8-MAWB-Comp32	composite	WB	NEW CPG-added sample (Comp32)		
White perch	LPR8	LPR8X	LPR8X-A	LPR8X-MA166	82	27	182						insufficient mass from location		

Species	Summary of Proposed Fish Plans	USEPA Sample Type (Composite or Individual)	USEPA Proposed Sampling Scheme and Associated Sample ID Numbers	Weight (grams)	Length (mm)	Human Health Sample	Ecological Sample	Comments
White Perch	USEPA & Partner Agency Agree	Individual	LPR1G-MA138	220	255		whole body	
2	USEPA & Partner Agency Agree	Composite	LPR1J-MA139+LPR1J-MA140+LPR1J-MA141	148+142+128=418	218 & 197 & 205	fillet		tight on mass (mass=418 g) but also in CPG plan
3	USEPA & Partner Agency Agree	Individual	LPR1J-MA145	544	321	fillet	offal	F/C; only one of this type of sample
101	New comp	Composite	LPR1P-MA154 + LPR1Q-MA147 + LPR1Q-MA150 + LPR1Q-MA153 + LPR1Q-MA155	4+1+5+6+0.9		fillet (fish too small)		too small
4	USEPA & Partner Agency Agree	Individual	LPR2H-MA158	272	262		whole body	
102	New comp	Composite	LPR2C-MA149 + LPR2C-MA151 + LPR2C-MA163 + LPR2C-MA164 + LPR2E-MA142 + LPR2E-MA159	0.7+2+1+1+0.5+6		fillet (fish too small)		too small; LPR2E (108 and 125) per e-mail don't exist, assume LPR2E (142 and 159) are intended fish
103	New comp	Composite	LPR2O (143, 144, 146, 148, 152, 156, 160, 162)	1.5+3+0.2+1+0.5+1.1+0.7+1.5		fillet (fish too small)		too small
106	New comp	Composite	LPR3A (018, 091, 093, 104, 105, 106)	4+1+1+4+4+4		fillet (fish too small)		too small
5	USEPA & Partner Agency Agree	Composite	LPR3M-MA011 + LPR3M-MA012 + LPR3M-MA014 + LPR3M-MA017 + LPR3M-MA025 + LPR3M-MA027 + LPR3M-MA030	62+62+66+98+58+62+60=468	158 & 160 & 160 & 182 & 163 & 171 & 162	fillet		CPG comp LPR3-MAFT04
6	USEPA & Partner Agency Agree	Composite	LPR3M-MA032+LPR3M-MA037+LPR3M-MA029+LPR3M-MA028+LPR3M-MA031	108+92+86+78+76=440	186 & 198 & 184 & 177 & 177	fillet		CPG comp LPR3-MAFT05
105	New comp	Composite	LPR3G (007, 009, 010, 034, 035, 036)	88+58+58+110+56+76=446		fillet		shown as LPR2C in e-mail, matches CPG LPR3G comp LPR3-MAFT03
104	New comp	Composite	LPR3N (041, 092, 095, 096, 097, 098)	54, 84, 66, 78, 56, 78=416		fillet		matches CPG LPR3N comp LPR3-MAFT06
7	USEPA & Partner Agency Agree	Composite	LPR3O-MA048 + LPR3O-MA070 + LPR3O-MA052	190+110+156=456	226 & 192 & 211	fillet		
8	USEPA & Partner Agency Agree	Composite	LPR3O-MA050 + LPR3O-MA065 + LPR3O-MA074 + LPR3O-MA062 + LPR3O-MA059	100+106+100+98+98=502	187 & 190 & 188 & 188 & 180	fillet		
9	USEPA & Partner Agency Agree	Composite	LPR3O-MA058 + LPR3O-MA067 + LPR3O-MA057	84+84=168; +82=250	173 & 182 & 178		whole body	Add 1 fish to increase mass
10	USEPA & Partner Agency Agree	Composite	LPR3O-MA079 + LPR3O-MA049 + LPR3O-MA081 + LPR3O-MA073	95+88=183 +80+85=348	182 & 170 & 171 & 177		whole body	Add 2 fish to increase mass
201	added 6/8	Composite	LPR3O (MA001, 002, 003, 004)	56+82+76+58=272			whole body	CPG comp LPR3-MAWB01
202	added 6/8	Composite	LPR3O (MA082, 083, 084, 085, 086, 102, 103)	62+64+78+7266+68+82=502		fillet		CPG comp LPR3-MAFT11
203	added 6/8	Composite	LPR3O (MA053, 054, 055, 068, 069)	82+70+80+76+70=378			whole body	
206	added 6/8	Composite	LPR3O (MA060, 061, 064, 066)	64+80+76+62=282	161&180&175&162		whole body	
207	added 6/8	Composite	LPR3O (MA071, 072, 075, 076, 077, 080)	62+60+60+65+70+57=374	158 & 162 & 169 & 159 & 171 & 159		whole body	
11	USEPA & Partner Agency Agree	Composite	LPR4R-MA216 + LPR4R-MA217 + LPR4R-MA218 + LPR4R-MA-219	34+56+38+48=176	134 & 155 & 138 & 150		whole body	
12	USEPA & Partner Agency Agree	Composite	LPR4P-MA193 + LPR4P-MA199	84+190=274	183 & 224		whole body	CPG comp LPR4-MAWB03
204	added 6/8	Composite	LPR4S (221, 223, 224, 265, 266)	78+62+66+182+74=462		fillet		CPG comp LPR4-MAFT12
13	USEPA & Partner Agency Agree	Composite	LPR4T-MA225 + LPR 4T-MA227 + LPR4T-MA261 + LPR4T-MA264 + LPR4T-MA262 add LPR4T-MA228 and MA231	134+82+72+66+98=452; +48+76=676	209 & 183 & 175 & 227 & 182 & 182	fillet		Add 2 fish to increase mass
14	USEPA & Partner Agency Agree	Composite	LPR5E-MA197 + LPR5E-MA198 + LPR5E-MA214 + LPR5E-MA259 + LPR5S-MA211	60+72+52+74+132=390			whole body	CPG comp LPR5-MAWB04
15	USEPA & Partner Agency Agree	Composite	LPR5R-MA201 + LPR5R-MA256 + LPR5R-MA257	294+144+78=516	240 & 220 & 178	fillet		CPG comp LPR5-MAFT14
107	New comp	Composite	LPR5R (202, 203, 204, 205, 206, 207, 253, 254)	138+130+58+48+62+80+56+124=698		fillet		matches CPG comp LPR5-MAFT15 from LPR5R; corrected weight of 696g
16	USEPA & Partner Agency Agree	Composite	LPR5T-MA233 + LPR5T-MA234 + LPR5T-MA237 + LPR5T-MA239 + LPR5T-MA241 + LPR5T-MA244 + LPR5T-MA246 + LPR5T-MA247	72+80+46+70+40+54+48+36=446	164 & 179 & 136 & 155 & 135 & 147 & 137 & 136	fillet		<6 inches
17	USEPA & Partner Agency Agree	Composite	LPR5T-MA235 + LPR5T-MA236 + LPR5T-MA238 + LPR5T-MA 240 + LPR5T-MA242 + LPR5T-MA243 + LPR5T-MA245 + LPR5T-MA248	42+28+32+28+36+32+28+30=256	133 & 129 & 131 & 128 & 131 & 136 & 123 & 118		whole body	< 6 inches but for ERA

Species	Summary of Proposed Fish Plans	USEPA Sample Type (Composite or Individual)	USEPA Proposed Sampling Scheme and Associated Sample ID Numbers	Weight (grams)	Length (mm)	Human Health Sample	Ecological Sample	Comments
205	added 6/8	Composite	LPR5I (195, 200, 269)	62+64+72=264			whole body	CPG LPR5-MAWB05
18	USEPA & Partner Agency Agree	Individual	LPR6L-MA122	639	315	fillet	whole body	
19	USEPA & Partner Agency Agree	Individual	LPR6Q-MA128	136	216		whole body	
20	USEPA & Partner Agency Agree	Composite	LPR6N-MA120 + LPR6R-MA121	206+268=464	260 & 242	fillet		
21	USEPA & Partner Agency Agree	Composite	LPR7J-MA137 + LPR7J-MA127 + LPR7N-MA126	54+70+52=176	159 & 170 & 156		whole body	CPG comp LPR7-MAWB07
22	USEPA & Partner Agency Agree	Individual	LPR7Q-MA123	202	236		whole body	
208	added 6/8	Composite	LPR8U (MA168, 169, 171, 173)	130+52+82+159=423	215 & 155 & 180 & 249	fillet		
209	added 6/8	Composite	LPR8V (MA165, 174, 192)	54+58+52=164	159 & 162 & 162		whole body	
23	USEPA & Partner Agency Agree	Composite	LPR8V-MA167 + LPR8V-MA176 + LPR8V-MA179 + LPR8V-MA183 + LPR8V-MA185	128+92+80+86+86=472	212 & 187 & 185 & 187 & 187	fillet		CPG comp (except include addtl fish MA165) LPR8-MAFT19
24	USEPA & Partner Agency Agree	Composite	LPR8V-MA175 + LPR8V-MA177 + LPR8V-MA178 + LPR8V-MA181 + LPR8V-MA187 + LPR8V-MA188	72+80+70+82+70+70=444	176 & 180 & 182 & 179 & 175 & 175	fillet		CPG comp (except include addtl fish MA 174) LPR6-MAFT20
25	USEPA & Partner Agency Agree	Composite	LPR8V-MA-180 + LPR8V-MA182 + LPR8V-MA184	52+60+60=172	164 & 169 & 167		whole body	
26	USEPA & Partner Agency Agree	Composite	LPR8V-MA189 + LPR8V-MA191 + LPR8V-MA186	70+66+62=198	175 & 175 & 173		whole body	

Table 1. Summary of proposed American eel samples - REVISED

Table 1. Summary of proposed American eel samples - REVISED						Estimated Mass		Whole body mass (g)	n	Composite length for American eel (mm)			Size class and length range (See Notes)
Species	Reach	RM	Location (s)	Sample ID (tissue type 1)	Sample ID (tissue type 2)	Fillet (g)	Carcass (g)			ave	min	max	
American eel	1	RM 0 - RM 2	LPR1G	LPR1-ARFT-Comp01		254		2	565	550	580	C	
American eel	1	RM 0 - RM 2	LPR1G	LPR1-ARFT-Comp02		213		2	525	520	529	B	
American eel	1	RM 0 - RM 2	LPR1G	LPR1-ARFT-Ind085	LPR1-ARCT-Ind085	151	301	1	575	575	575	C	
American eel	1	RM 0 - RM 2	LPR1Q		LPR1-ARWB-Comp03			3	340	287	392	A	
American eel	2	RM 2 - RM 4	LPR2F/LPR2G/LPR2N ^a	LPR2-ARFT-Comp04	LPR2-ARCT-Comp04	199	401	3	459	400	508	B	
American eel	3	RM 4 - RM 6	LPR3L	LPR3-ARFT-Comp05		217		2	523	520	525	B	
American eel	3	RM 4 - RM 6	LPR3Q	LPR3-ARFT-Comp06		195		2	475	450	500	B	
American eel	3	RM 4 - RM 6	LPR3L	LPR3-ARFT-Ind010		163		1	620	620	620	C	
American eel	3	RM 4 - RM 6	LPR3P	LPR3-ARFT-Ind014		283		1	750	750	750	D	
American eel	3	RM 4 - RM 6	LPR3Q	LPR3-ARFT-Ind005		146		1	600	600	600	C	
American eel	3	RM 4 - RM 6	LPR3P		LPR3-ARWB-Ind001			375	1	551	551	551	C
American eel	3	RM 4 - RM 6	LPR3Q		LPR3-ARWB-Ind012			420	1	635	635	635	D
American eel	3	RM 4 - RM 6	LPR3L		LPR3-ARWB-Ind009			285	1	480	480	480	B
American eel	3	RM 4 - RM 6	LPR3P	LPR3-ARFT-Comp20		138		2	450	400	500	B	
American eel	4	RM 6 - RM 8	LPR4F	LPR4-ARFT-Ind022		205		1	662	662	662	D	
American eel	4	RM 6 - RM 8	LPR4M	LPR4-ARFT-Ind035		219		1	680	680	680	D	
American eel	4	RM 6 - RM 8	LPR4M/4N ^b	LPR4-ARFT-Comp07		277		2	586	561	610	C	
American eel	4	RM 6 - RM 8	LPR4N	LPR4-ARFT-Ind034		207		1	463	463	463	B	
American eel	4	RM 6 - RM 8	LPR4Q	LPR4-ARFT-Ind026		203		1	650	650	650	D	
American eel	4	RM 6 - RM 8	LPR4Q	LPR4-ARFT-Ind044		222		1	652	652	652	D	
American eel	4	RM 6 - RM 8	LPR4N		LPR4-ARWB-Ind024			318	1	511	511	511	B
American eel	4	RM 6 - RM 8	LPR4N		LPR4-ARWB-Ind060			352	1	550	550	550	C
American eel	4	RM 6 - RM 8	LPR4Q		LPR4-ARWB-Ind025			422	1	603	603	603	C
American eel	4	RM 6 - RM 8	LPR4Q		LPR4-ARWB-Ind043			366	1	561	561	561	C
American eel	4	RM 6 - RM 8	LPR4M	LPR4-ARFT-Comp08		156		2	481	480	482	B	
American eel	5	RM 8 - RM 10	LPR5F	LPR5-ARFT-Comp09		214		2	527	490	564	C	
American eel	5	RM 8 - RM 10	LPR5H	LPR5-ARFT-Comp10		163		2	467	460	473	B	
American eel	5	RM 8 - RM 10	LPR5F	LPR5-ARFT-Ind021		173		1	578	578	578	C	
American eel	5	RM 8 - RM 10	LPR5F	LPR5-ARFT-Ind048		181		1	615	615	615	C	
American eel	5	RM 8 - RM 10	LPR5F	LPR5-ARFT-Ind049		213		1	675	675	675	D	
American eel	5	RM 8 - RM 10	LPR5H	LPR5-ARFT-Ind030		175		1	592	592	592	C	
American eel	5	RM 8 - RM 10	LPR5J	LPR5-ARFT-Ind040		169		1	610	610	610	C	
American eel	5	RM 8 - RM 10	LPR5H		LPR5-ARWB-Ind062			390	1	560	560	560	C
American eel	5	RM 8 - RM 10	LPR5J		LPR5-ARWB-Ind039			370	1	550	550	550	C
American eel	5	RM 8 - RM 10	LPR5A		LPR5-ARWB-Comp11 ^e			162	3	295	270	314	A
American eel	5	RM 8 - RM 10	LPR5M	LPR5-ARFT-Ind086		147		1	570	570	570	C	
American eel	5	RM 8 - RM 10	LPR5H	LPR5-ARFT-Comp12		154		2	478	475	480	B	
American eel	6	RM 10 - RM 12	LPR6O	LPR6-ARFT-Ind073		259		1	741	741	741	D	
American eel	6	RM 10 - RM 12	LPR6P	LPR6-ARFT-Ind065		193		1	590	590	590	C	
American eel	6	RM 10 - RM 12	LPR6O		LPR6-ARWB-Ind069			214	1	449	449	449	B
American eel	6	RM 10 - RM 12	LPR6R		LPR6-ARWB-Ind074			258	1	481	481	481	B
American eel	7	RM 10 - RM 12	LPR7O	LPR7-ARFT-Ind071		200		1	624	624	624	D	
American eel	7	RM 12 - RM 14	LPR7H		LPR7-ARWB-Ind070			126	1	373	373	373	A
American eel	8	RM 8 - RM 10	LPR8U		LPR8-ARWB-Comp13 ^e			176	5	284	264	310	A
American eel	8	RM 14 - RM 17.4	LPR8V/LPR8Y/LPR8Z ^c	LPR8-ARFT-Comp14		164		6	335	308	396	A	
American eel	8	RM 14 - RM 17.4	LPR8V		LPR8-ARWB-Comp15 ^e			162	4	275	268	282	A
American eel	8	RM 14 - RM 17.4	LPR8X		LPR8-ARWB-Comp16 ^e			152	4	275	268	282	A
American eel	8	RM 14 - RM 17.4	LPR8Y/LPR8Z ^d	LPR8-ARFT-Comp17 ^e		156		9	303	278	330	A	
American eel	8	RM 14 - RM 17.4	LPR8Y		LPR8-ARWB-Comp18 ^e			178	4	280	271	288	A
American eel	8	RM 14 - RM 17.4	LPR8Z		LPR8-ARWB-Comp19 ^e			190	4	286	274	294	A
American eel	8	RM 14 - RM 17.4	LPR8Z	LPR8-ARFT-Comp21		133		10	285.6	279	293	A	
American eel	8	RM 14 - RM 17.4	LPR8Z	LPR8-ARFT-Comp22 ^e		133		11	274.727	261	284	A	

Notes:

^a LPR2F and LPR2N are on opposite sides of the river at the same RM; LPR2G is within ~0.5 miles of LPR2F and LPR2N^b Locations are approximately 0.6 miles apart^c LPR8Y and LPR8Z are within approximately 0.4 miles of each other; LPR8V and LPR8Y are just over 1 mile from each other and LPR8V and LPR8Z are ~1.5 miles^d LPR8Y and LPR8Z are within approximately 0.4 miles of each other^e Includes fish < 279 mm (and > 254 mm)

Shaded cells indicate the samples targeted for QC analysis

Size Class Definitions

A = <400 mm

B = 400-525 mm

C = 526-620 mm

D = >620 mm

HH samples

Size class	Ind. Fillet	Comp. Fillet	Total
A	0	4	4
B	1	8	9
C	9	3	12
D	8	0	8
			33

Eco samples

Size class	WB	Offal	Total
A	8	0	8
B	4	1	5
C	6	1	7
D	1	0	1
			21

Table 2. Proposed composite samples for American eel - REVISED

Reach	Location ID	Trap ID	Collection Method	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	EPA No.	Sample ID (tissue type 1)	Sample ID (tissue type 2)	EPA sample	Notes	Reason for exclusion from composite?	Specimen Comments
LPR1	LPR1G	LPR1G-A	Trotline	LPR1G-AR075	364	121	550	1	LPR1-ARFT-Comp01		fillet			
LPR1	LPR1G	LPR1G-A	Trotline	LPR1G-AR077	312	104	520	3	LPR1-ARFT-Comp02		fillet			
LPR1	LPR1G	LPR1G-C	Trotline	LPR1G-AR080	400	133	580	1	LPR1-ARFT-Comp01		fillet			
LPR1	LPR1G	LPR1G-A	Trotline	LPR1G-AR085	452	151	575	2	LPR1-ARFT-Ind085	LPR1-ARCT-Ind085	fillet/WB			
LPR1	LPR1G	LPR1G-A	Trotline	LPR1G-AR646	326	109	529	3	LPR1-ARFT-Comp02		fillet			
LPR1	LPR1Q	LPR1Q-A	Eel Trap	LPR1Q-AR081	64	21	392	4		LPR1-ARWB-Comp03	WB			
LPR1	LPR1Q	LPR1Q-A	Eel Trap	LPR1Q-AR082	46	15	287	4		LPR1-ARWB-Comp03	WB			
LPR1	LPR1Q	LPR1Q-A	Eel Trap	LPR1Q-AR083	60	20	340	4		LPR1-ARWB-Comp03	WB			
LPR2	LPR2E	LPR2E-C	Minnow Trap	LPR2E-AR076	18	6	237						< 279 mm	
LPR2	LPR2F	LPR2F-A	Trotline	LPR2F-AR084	118	39	400	5	LPR2-ARFT-Comp04	LPR2-ARCT-Comp04	fillet/WB	3 locations; 2F, N adjacent, 2G 0.5 mile away		
LPR2	LPR2G	LPR2G-A	Trotline	LPR2G-AR079	232	77	470	5	LPR2-ARFT-Comp04	LPR2-ARCT-Comp04	fillet/WB	3 locations; 2F, N adjacent, 2G 0.5 mile away		
LPR2	LPR2N	LPR2N-C	Crab Trap	LPR2N-AR078	250	83	508	5	LPR2-ARFT-Comp04	LPR2-ARCT-Comp04	fillet/WB	3 locations; 2F, N adjacent, 2G 0.5 mile away		
LPR3	LPR3B	LPR3B-B	Minnow Trap	LPR3B-AR019	40	13	250						< 279 mm	
LPR3	LPR3F	LPR3F-C	Crab Trap	LPR3F-AR015	128	43	426							
LPR3	LPR3F	LPR3F-C	Crab Trap	LPR3F-AR016	70	23	320							
LPR3	LPR3I	LPR3I-A	Eel Trap	LPR3I-AR011	16	5	216						< 279 mm	
LPR3	LPR3L	LPR3L-A	Trotline	LPR3L-AR006	360	120	520	6	LPR3-ARFT-Comp05		fillet			
LPR3	LPR3L	LPR3L-B	Trotline	LPR3L-AR007	290	97	525	6	LPR3-ARFT-Comp05		fillet			
LPR3	LPR3L	LPR3L-B	Trotline	LPR3L-AR008	152	51	415							
LPR3	LPR3L	LPR3L-C	Trotline	LPR3L-AR009	285	95	480	101		LPR3-ARWB-Ind009	WB			
LPR3	LPR3L	LPR3L-C	Trotline	LPR3L-AR010	490	163	620	7	LPR3-ARFT-Ind010		fillet			
LPR3	LPR3P	LPR3P-B	Trotline	LPR3P-AR001	375	125	551	8		LPR3-ARWB-Ind001	WB			
LPR3	LPR3P	LPR3P-C	Trotline	LPR3P-AR002	255	85	500	201	LPR3-ARFT-Comp20		fillet	CPG added sample (Comp20)		
LPR3	LPR3P	LPR3P-C	Trotline	LPR3P-AR003	159	53	400	201	LPR3-ARFT-Comp20		fillet	CPG added sample (Comp20)		
LPR3	LPR3P	LPR3P-A	Trotline	LPR3P-AR014	850	283	750	9	LPR3-ARFT-Ind014		fillet			
LPR3	LPR3Q	LPR3Q-A	Trotline	LPR3Q-AR004	390	130	500	10	LPR3-ARFT-Comp06		fillet			
LPR3	LPR3Q	LPR3Q-C	Trotline	LPR3Q-AR005	438	146	600	11	LPR3-ARFT-Ind005		fillet			
LPR3	LPR3Q	LPR3Q-B	Trotline	LPR3Q-AR012	420	140	635	12		LPR3-ARWB-Ind012	WB			
LPR3	LPR3Q	LPR3Q-B	Trotline	LPR3Q-AR013	196	65	450	10	LPR3-ARFT-Comp06		fillet			
LPR4	LPR4C	LPR4C-B	Minnow Trap	LPR4C-AR018	60	20	335						< 279 mm	
LPR4	LPR4D	LPR4D-B	Minnow Trap	LPR4D-AR023	16	5	207							
LPR4	LPR4F	LPR4F-B	Crab Trap	LPR4F-AR022	616	205	662	13	LPR4-ARFT-Ind022		fillet			
LPR4	LPR4J	LPR4J-C	Eel Trap	LPR4J-AR017	46	15	264						< 279 mm	
LPR4	LPR4L	LPR4L-A	Gillnet	LPR4L-AR054	386	129	560						see specimen comments	Dead and pale; squishy; tail eaten
LPR4	LPR4M	LPR4M-A	Trotline	LPR4M-AR042	226	75	482	102	LPR4-ARFT-Comp08		fillet			
LPR4	LPR4M	LPR4M-B	Trotline	LPR4M-AR035	656	219	680	14	LPR4-ARFT-Ind035		fillet			
LPR4	LPR4M	LPR4M-B	Trotline	LPR4M-AR055	106	35	570							
LPR4	LPR4M	LPR4M-B	Trotline	LPR4M-AR056	244	81	480	102	LPR4-ARFT-Comp08		fillet			
LPR4	LPR4M	LPR4M-C	Trotline	LPR4M-AR033	44	15	273						< 279 mm	
LPR4	LPR4M	LPR4M-C	Trotline	LPR4M-AR041	468	156	610	15	LPR4-ARFT-Comp07		fillet			
LPR4	LPR4N	LPR4N-C	Trotline	LPR4N-AR024	318	106	511	16		LPR4-ARWB-Ind024	WB			
LPR4	LPR4N	LPR4N-A	Trotline	LPR4N-AR032	362	121	561	15	LPR4-ARFT-Comp07		fillet			
LPR4	LPR4N	LPR4N-A	Trotline	LPR4N-AR034	622	207	463	18	LPR4-ARFT-Ind034		fillet			
LPR4	LPR4N	LPR4N-A	Trotline	LPR4N-AR050	250	83	500							Urogenital opening swollen
LPR4	LPR4N	LPR4N-C	Trotline	LPR4N-AR060	352	117	550	19		LPR4-ARWB-Ind060	WB			
LPR4	LPR4Q	LPR4Q-C	Trotline	LPR4Q-AR025	422	141	603	20		LPR4-ARWB-Ind025	WB			
LPR4	LPR4Q	LPR4Q-A	Trotline	LPR4Q-AR026	608	203	650	21	LPR4-ARFT-Ind026		fillet			
LPR4	LPR4Q	LPR4Q-A	Trotline	LPR4Q-AR043	366	122	561	22		LPR4-ARWB-Ind043	WB			
LPR4	LPR4Q	LPR4Q-A	Trotline	LPR4Q-AR044	666	222	652	23	LPR4-ARFT-Ind044		fillet			Bloody
LPR5	LPR5A	LPR5A-A	Minnow Trap	LPR5A-AR051	46	15	299							
LPR5	LPR5A	LPR5A-A	Minnow Trap	LPR5A-AR052	68	23	314	103		LPR5-ARWB-Comp11	WB			
LPR5	LPR5A	LPR5A-C	Minnow Trap	LPR5A-AR057	52	17	300	103		LPR5-ARWB-Comp11	WB			
LPR5	LPR5A	LPR5A-A	Minnow Trap	LPR5A-AR058	42	14	270	103		LPR5-ARWB-Comp11	WB		< 279 mm (> 254 mm)	
LPR5	LPR5A	LPR5A-A	Minnow Trap	LPR5A-AR059	16	5	170						< 279 mm	
LPR5	LPR5B	LPR5B-C	Minnow Trap	LPR5B-AR029	60	20	322							
LPR5	LPR5B	LPR5B-C	Minnow Trap	LPR5B-AR053	38	13	255						< 279 mm	
LPR5	LPR5F	LPR5F-B	Trotline	LPR5F-AR020	260	87	490	24	LPR5-ARFT-Comp09		fillet			
LPR5	LPR5F	LPR5F-A	Trotline	LPR5F-AR021	518	173	578	25	LPR5-ARFT-Ind021		fillet			
LPR5	LPR5F	LPR5F-B	Trotline	LPR5F-AR028	380	127	564	24	LPR5-ARFT-Comp09		fillet			Growth observed
LPR5	LPR5F	LPR5F-C	Trotline	LPR5F-AR036	138	46	43						< 279 mm	
LPR5	LPR5F	LPR5F-C	Trotline	LPR5F-AR048	542	181	615	26	LPR5-ARFT-Ind048		fillet			
LPR5	LPR5F	LPR5F-B	Trotline	LPR5F-AR049	638	213	675	27	LPR5-ARFT-Ind049		fillet			
LPR5	LPR5H	LPR5H-C	Trotline	LPR5H-AR030	524	175	592	28	LPR5-ARFT-Ind030		fillet			
LPR5	LPR5H	LPR5H-A	Trotline	LPR5H-AR031	206	69	475	105	LPR5-ARFT-Comp12		fillet			
LPR5	LPR5H	LPR5H-A	Trotline	LPR5H-AR037	246	82	460	29	LPR5-ARFT-Comp10		fillet			Bloody
LPR5	LPR5H	LPR5H-B	Trotline	LPR5H-AR038	244	81	473	29	LPR5-ARFT-Comp10		fillet			
LPR5	LPR5H	LPR5H-B	Trotline	LPR5H-AR061	254	85	480	105	LPR5-ARFT-Comp12		fillet			
LPR5	LPR5H	LPR5H-C	Trotline	LPR5H-AR062	390	130	560	30		LPR5-ARWB-Ind062	WB			
LPR5	LPR5J	LPR5J-C	Trotline	LPR5J-AR039	370	123	550	31		LPR5-ARWB-Ind039	WB			Bloody
LPR5	LPR5J	LPR5J-A	Trotline	LPR5J-AR040	506	169	610	32	LPR5-ARFT-Ind040		fillet			
LPR5	LPR5J	LPR5J-C	Trotline	LPR5J-AR063	48	16	300							
LPR5	LPR5J	LPR5J-B	Trotline	LPR5J-AR064	96	32	360							
LPR5	LPR5M	LPR5M-B	Crab Trap	LPR5M-AR086	442	147	570	104	LPR5-ARFT-Ind086		fillet			trap lost on 8/19/09 was recovered
LPR5	LPR5P	LPR5P-B	Eel Trap	LPR5P-AR027	16	5	218						< 279 mm	

Table 2. Proposed composite samples for American eel - REVISED

Reach	Location ID	Trap ID	Collection Method	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	EPA No.	Sample ID (tissue type 1)	Sample ID (tissue type 2)	EPA sample	Notes	Reason for exclusion from composite?	Specimen Comments
LPR6	LPR6F	LPR6F-A		LPR6F-AR645	66	22	319							
LPR6	LPR6B	LPR6B-B	Minnow Trap	LPR6B-AR068	66	22	319							
LPR6	LPR6O	LPR6O-B	Trotline	LPR6O-AR069	214	71	449	33		LPR6-ARWB-Ind069	WB			
LPR6	LPR6O	LPR6O-A	Trotline	LPR6O-AR073	778	259	741	35	LPR6-ARFT-Ind073		fillet			
LPR6	LPR6P	LPR6P-A	Trotline	LPR6P-AR065	580	193	590	36	LPR6-ARFT-Ind065		fillet			
LPR6	LPR6R	LPR6R-C	Trotline	LPR6R-AR074	258	86	481	34		LPR6-ARWB-Ind074	WB			
LPR7	LPR7D	LPR7D-B	Minnow Trap	LPR7D-AR072	28	9	245						< 279 mm	
LPR7	LPR7E	LPR7E-A	Minnow Trap	LPR7E-AR066	28	9	240						< 279 mm	
LPR7	LPR7E	LPR7E-C	Minnow Trap	LPR7E-AR067	34	11	262						< 279 mm	
LPR7	LPR7H	LPR7H-A	Crab Trap	LPR7H-AR070	126	42	373	37		LPR7-ARWB-Ind070	WB			
LPR7	LPR7O	LPR7O-A	Trotline	LPR7O-AR071	600	200	624	38	LPR7-ARFT-Ind071		fillet			
LPR8	LPR8D	LPR8D-A	Minnow Trap	LPR8D-AR628	47	16	297							
LPR8	LPR8U	LPR8U-A	Boat Electrofishing	LPR8U-AR161	36	12	310	39		LPR8-ARWB-Comp13	WB			
LPR8	LPR8U	LPR8U-A	Boat Electrofishing	LPR8U-AR162	44	15	290	39		LPR8-ARWB-Comp13	WB			
LPR8	LPR8U	LPR8U-A	Boat Electrofishing	LPR8U-AR167	36	12	287	39		LPR8-ARWB-Comp13	WB			
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR173	64	21	325	45	LPR8-ARFT-Comp14		fillet			
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR337	44	15	282	40		LPR8-ARWB-Comp15	WB			
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR640	34	11	282							
LPR8	LPR8W	LPR8W-A	Boat Electrofishing	LPR8W-AR087	40	13	282							
LPR8	LPR8W	LPR8W-A	Boat Electrofishing	LPR8W-AR105	46	15	296							
LPR8	LPR8W	LPR8W-A	Boat Electrofishing	LPR8W-AR632	38	13	285							
LPR8	LPR8X	LPR8X-A	Boat Electrofishing	LPR8X-AR291	44	15	282	41		LPR8-ARWB-Comp16	WB			
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR108	50	17	305	42	LPR8-ARFT-Comp17		fillet			
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR119	46	15	288	43		LPR8-ARWB-Comp18	WB			
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR278	37	12	284							
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR280	49	16	286	42	LPR8-ARFT-Comp17		fillet			
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR286	57	19	308	45	LPR8-ARFT-Comp14		fillet			
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR296	38	13	282							
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR297	56	19	308	42	LPR8-ARFT-Comp17		fillet			
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR317	46	15	282	43		LPR8-ARWB-Comp18	WB			
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR318	66	22	317	45	LPR8-ARFT-Comp14		fillet			
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR319	54	18	312	42	LPR8-ARFT-Comp17		fillet			
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR620	37	12	285							
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR132	37.5	13	281	202	LPR8-ARFT-Comp21		fillet	CPG added sample (Comp21)		
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR134	28.5	10	284	203	LPR8-ARFT-Comp22		fillet	CPG added sample (Comp22)		
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR195	48	16	289	42	LPR8-ARFT-Comp17		fillet			
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR201	40	13	281	202	LPR8-ARFT-Comp21		fillet	CPG added sample (Comp21)		
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR204	46	15	293	202	LPR8-ARFT-Comp21		fillet	CPG added sample (Comp21)		
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR221	48	16	282	44		LPR8-ARWB-Comp19	WB			
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR224	54	18	327	42	LPR8-ARFT-Comp17		fillet			
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR226	48	16	294	44		LPR8-ARWB-Comp19	WB			
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR377	47	16	294	44		LPR8-ARWB-Comp19	WB			
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR378	53	18	289	42	LPR8-ARFT-Comp17		fillet			
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR379	36	12	281	202	LPR8-ARFT-Comp21		fillet	CPG added sample (Comp21)		
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR387	53	18	330	42	LPR8-ARFT-Comp17		fillet			
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR421	160	53	396	45	LPR8-ARFT-Comp14		fillet			
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR460	78	26	340	45	LPR8-ARFT-Comp14		fillet			
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR463	36	12	283	202	LPR8-ARFT-Comp21		fillet	CPG added sample (Comp21)		
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR470	38	13	279	202	LPR8-ARFT-Comp21		fillet	CPG added sample (Comp21)		
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR483	44	15	293	202	LPR8-ARFT-Comp21		fillet	CPG added sample (Comp21)		
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR487	38	13	291	202	LPR8-ARFT-Comp21		fillet	CPG added sample (Comp21)		
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR497	31	10	282	203	LPR8-ARFT-Comp22		fillet	CPG added sample (Comp22)		
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR515	33	11	279	203	LPR8-ARFT-Comp22		fillet	CPG added sample (Comp22)		
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR537	70	23	324	45	LPR8-ARFT-Comp14		fillet			
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR548	44	15	292	202	LPR8-ARFT-Comp21		fillet	CPG added sample (Comp21)		
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR555	36	12	282	202	LPR8-ARFT-Comp21		fillet	CPG added sample (Comp21)		
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR536	33	11	281	203	LPR8-ARFT-Comp22		fillet	CPG added sample (Comp22)		
LPR8	LPR8W	LPR8W-A	Boat Electrofishing	LPR8W-AR290	6	2	184						< 279 mm	
LPR8	LPR8D	LPR8D-A	Minnow Trap	LPR8D-AR629	31	10	260						< 279 mm (> 254 mm)	
LPR8	LPR8F	LPR8F-A	Minnow Trap	LPR8F-AR129	17.5	6	243						< 279 mm	
LPR8	LPR8U	LPR8U-A	Boat Electrofishing	LPR8U-AR159	10	3	185						< 279 mm	
LPR8	LPR8U	LPR8U-A	Boat Electrofishing	LPR8U-AR160	32	11	269	39		LPR8-ARWB-Comp13	WB	includes fish < 279 mm (> 254 mm)	< 279 mm (> 254 mm)	
LPR8	LPR8U	LPR8U-A	Boat Electrofishing	LPR8U-AR163	28	9	264	39		LPR8-ARWB-Comp13	WB	includes fish < 279 mm (> 254 mm)	< 279 mm (> 254 mm)	
LPR8	LPR8U	LPR8U-A	Boat Electrofishing	LPR8U-AR164	24	8	259						< 279 mm (> 254 mm)	
LPR8	LPR8U	LPR8U-A	Boat Electrofishing	LPR8U-AR165	28	9	251						< 279 mm	
LPR8	LPR8U	LPR8U-A	Boat Electrofishing	LPR8U-AR166	16	5	225						< 279 mm	
LPR8	LPR8U	LPR8U-A	Boat Electrofishing	LPR8U-AR168	16	5	224						< 279 mm	
LPR8	LPR8U	LPR8U-A	Boat Electrofishing	LPR8U-AR169	8	3	177						< 279 mm	
LPR8	LPR8U	LPR8U-A	Boat Electrofishing	LPR8U-AR170	8	3	174						< 279 mm	
LPR8	LPR8U	LPR8U-A	Boat Electrofishing	LPR8U-AR171	8	3	168						< 279 mm	
LPR8	LPR8U	LPR8U-A	Boat Electrofishing	LPR8U-AR292	14	5	198						< 279 mm	
LPR8	LPR8U	LPR8U-A	Boat Electrofishing	LPR8U-AR293	20	7	232						< 279 mm	
LPR8	LPR8U	LPR8U-A	Boat Electrofishing	LPR8U-AR627	13	4	209						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR106	22	7	244						< 279 mm	

Table 2. Proposed composite samples for American eel - REVISED

Reach	Location ID	Trap ID	Collection Method	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	EPA No.	Sample ID (tissue type 1)	Sample ID (tissue type 2)	EPA sample	Notes	Reason for exclusion from composite?	Specimen Comments
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR107	44	15	277	40		LPR8-ARWB-Comp15	WB	includes fish < 279 mm (> 254 mm)	< 279 mm (> 254 mm)	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR172	32	11	267						< 279 mm (> 254 mm)	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR174	20	7	249						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR175	36	12	268	40		LPR8-ARWB-Comp15	WB	includes fish < 279 mm (> 254 mm)	< 279 mm (> 254 mm)	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR178	38	13	273	40		LPR8-ARWB-Comp15	WB	includes fish < 279 mm (> 254 mm)	< 279 mm (> 254 mm)	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR179	24	8	247						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR180	36	12	267						< 279 mm (> 254 mm)	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR181	18	6	213						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR182	26	9	247						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR183	10	3	185						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR184	8	3	162						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR185	4	1	110						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR186	8	3	151						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR187	4	1	145						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR336	28	9	227						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR338	25	8	246						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR339	26	9	248						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR340	0.5	0	73						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR341	9	3	178						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR342	7	2	174						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR343	9	3	186						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR344	3	1	135						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR345	16	5	222						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR633	30	10	278						< 279 mm (> 254 mm)	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR634	24	8	265						< 279 mm (> 254 mm)	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR635	19	6	224						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR636	20	7	241						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR637	24	8	239						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR638	26	9	252						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR639	10	3	187						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR641	34	11	278						< 279 mm (> 254 mm)	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR642	14	5	213						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR643	10	3	174						< 279 mm	
LPR8	LPR8V	LPR8V-A	Boat Electrofishing	LPR8V-AR644	21	7	250						< 279 mm	
LPR8	LPR8W	LPR8W-A	Boat Electrofishing	LPR8W-AR088	26	9	259						< 279 mm (> 254 mm)	
LPR8	LPR8W	LPR8W-A	Boat Electrofishing	LPR8W-AR089	12	4	202						< 279 mm	
LPR8	LPR8W	LPR8W-A	Boat Electrofishing	LPR8W-AR090	2	1	117						< 279 mm	
LPR8	LPR8W	LPR8W-A	Boat Electrofishing	LPR8W-AR091	16	5	212						< 279 mm	
LPR8	LPR8W	LPR8W-A	Boat Electrofishing	LPR8W-AR092	9	3	186						< 279 mm	
LPR8	LPR8W	LPR8W-A	Boat Electrofishing	LPR8W-AR289	36	12	269						< 279 mm (> 254 mm)	
LPR8	LPR8W	LPR8W-A	Boat Electrofishing	LPR8W-AR631	9	3	191						< 279 mm	
LPR8	LPR8X	LPR8X-A	Boat Electrofishing	LPR8X-AR093	20	7	237						< 279 mm	
LPR8	LPR8X	LPR8X-A	Boat Electrofishing	LPR8X-AR094	8	3	143						< 279 mm	
LPR8	LPR8X	LPR8X-A	Boat Electrofishing	LPR8X-AR095	20	7	217						< 279 mm	
LPR8	LPR8X	LPR8X-A	Boat Electrofishing	LPR8X-AR096	18	6	224						< 279 mm	
LPR8	LPR8X	LPR8X-A	Boat Electrofishing	LPR8X-AR097	40	13	268	41		LPR8-ARWB-Comp16	WB	includes fish < 279 mm (> 254 mm)	< 279 mm (> 254 mm)	
LPR8	LPR8X	LPR8X-A	Boat Electrofishing	LPR8X-AR098	34	11	273	41		LPR8-ARWB-Comp16	WB	includes fish < 279 mm (> 254 mm)	< 279 mm (> 254 mm)	
LPR8	LPR8X	LPR8X-A	Boat Electrofishing	LPR8X-AR099	20	7	224						< 279 mm	
LPR8	LPR8X	LPR8X-A	Boat Electrofishing	LPR8X-AR100	30	10	271						< 279 mm (> 254 mm)	
LPR8	LPR8X	LPR8X-A	Boat Electrofishing	LPR8X-AR101	32	11	266						< 279 mm (> 254 mm)	
LPR8	LPR8X	LPR8X-A	Boat Electrofishing	LPR8X-AR102	18	6	246						< 279 mm	
LPR8	LPR8X	LPR8X-A	Boat Electrofishing	LPR8X-AR103	26	9	244						< 279 mm	
LPR8	LPR8X	LPR8X-A	Boat Electrofishing	LPR8X-AR104	32	11	257						< 279 mm (> 254 mm)	
LPR8	LPR8X	LPR8X-A	Boat Electrofishing	LPR8X-AR188	24	8	249						< 279 mm	
LPR8	LPR8X	LPR8X-A	Boat Electrofishing	LPR8X-AR630	34	11	277	41		LPR8-ARWB-Comp16	WB	includes fish < 279 mm (> 254 mm)	< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR109	27	9	253						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR110	36	12	274						< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR111	14	5	199						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR112	42	14	278	43		LPR8-ARWB-Comp18	WB	< 279 mm (> 254 mm)	< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR113	40	13	277						< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR114	29	10	257						< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR115	36	12	258						< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR116	32.5	11	250						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR117	30	10	274						< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR118	33.5	11	261						< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR120	10.5	4	181						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR121	32	11	257						< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR122	11	4	210						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR123	2	1	110						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR124	12.5	4	200						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR125	12	4	186						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR126	7	2	157						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR127	9	3	178						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR128	4	1	139						< 279 mm	

Table 2. Proposed composite samples for American eel - REVISED

Reach	Location ID	Trap ID	Collection Method	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	EPA No.	Sample ID (tissue type 1)	Sample ID (tissue type 2)	EPA sample	Notes	Reason for exclusion from composite?	Specimen Comments
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR269	15	5	204						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR270	6	2	163						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR271	2	1	120						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR272	6	2	150						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR273	4	1	140						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR274	7	2	167						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR275	31	10	261						< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR276	5	2	142						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR277	4	1	137						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR279	32	11	268						< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR281	8	3	173						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR282	29	10	262						< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR283	16	5	218						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR284	25	8	250						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR285	32	11	263						< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR287	9	3	192						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR288	28	9	249						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR294	16	5	209						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR295	20	7	213						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR298	4	1	117						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR299	16	5	206						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR300	28	9	243						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR301	30	10	254						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR302	4	1	132						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR303	6	2	144						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR304	38	13	275						< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR305	16	5	204						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR306	30	10	257						< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR307	24	8	221						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR308	28	9	256						< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR309	22	7	233						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR310	3	1	118						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR311	40	13	266						< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR312	32	11	251						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR313	20	7	201						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR314	28	9	249						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR315	18	6	221						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR316	12	4	204						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR320	6	2	142						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR321	7	2	164						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR322	5	2	144						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR323	0.5	0	88						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR324	3	1	122						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR325	44	15	271	43		LPR8-ARWB-Comp18	WB		< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR326	8	3	173						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR327	7	2	152						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR328	6	2	158						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR329	7	2	167						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR330	6	2	159						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR331	20	7	212						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR332	26	9	243						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR333	5	2	172						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR334	28	9	247						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR335	10	3	197						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR618	5	2	145						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR619	6	2	155						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR621	20	7	230						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR622	12	4	180						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR623	25	8	240						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR624	36	12	270						< 279 mm (> 254 mm)	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR625	3	1	115						< 279 mm	
LPR8	LPR8Y	LPR8Y-A	Backpack Electrofi	LPR8Y-AR626	4	1	140						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR130	28	9	239						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR131	32	11	260						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR133	20	7	232						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR135	30	10	265						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR136	6	2	152						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR137	29	10	268						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR138	8	3	170						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR139	20	7	215						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR140	38.5	13	278	203	LPR8-ARFT-Comp22		fillet	CPG added sample (Comp22)	< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR141	12	4	200						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR142	23.5	8	254						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR143	24	8	242						< 279 mm	

Table 2. Proposed composite samples for American eel - REVISED

Reach	Location ID	Trap ID	Collection Method	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	EPA No.	Sample ID (tissue type 1)	Sample ID (tissue type 2)	EPA sample	Notes	Reason for exclusion from composite?	Specimen Comments
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR144	8.5	3	180						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR145	4	1	145						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR146	9	3	184						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR147	6	2	160						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR148	10.5	4	185						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR149	16	5	214						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR150	5	2	147						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR151	15	5	203						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR152	11	4	199						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR153	2.5	1	121						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR154	9	3	179						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR155	4	1	129						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR156	4	1	135						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR157	4	1	142						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR158	3.5	1	127						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR189	36	12	265						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR190	35	12	275						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR191	48	16	278	42	LPR8-ARFT-Comp17		fillet	includes fish < 279 mm (> 254 mm)	< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR192	28	9	238						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR193	28	9	250						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR194	8	3	146						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR196	34	11	261						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR197	16	5	191						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR198	12	4	187						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR199	22	7	227						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR200	20	7	223						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR202	36	12	278						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR203	26	9	250						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR205	12	4	194						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR206	22	7	226						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR207	12	4	179						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR208	26	9	236						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR209	18	6	217						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR210	8	3	154						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR211	18	6	222						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR212	10	3	181						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR213	32	11	272						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR214	4	1	141						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR215	4	1	130						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR216	4	1	138						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR217	12	4	205						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR218	12	4	206						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR219	6	2	172						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR220	20	7	223						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR222	38	13	263	203	LPR8-ARFT-Comp22		fillet	CPG added sample (Comp22)	< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR223	14	5	191						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR225	30	10	225						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR227	30	10	265						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR228	24	8	249						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR229	24	8	256						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR230	20	7	241						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR231	10	3	187						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR232	6	2	153						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR233	10	3	184						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR234	4	1	156						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR235	32	11	265						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR236	12	4	178						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR237	12	4	178						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR238	12	4	184						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR239	12	4	193						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR240	6	2	154						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR241	6	2	174						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR242	4	1	137						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR243	4	1	137						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR244	4	1	144						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR245	5	2	151						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR246	5	2	143						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR247	6	2	147						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR248	6	2	160						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR249	4	1	125						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR250	5	2	146						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR251	4	1	140						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR252	5	2	139						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR253	4	1	135						< 279 mm	

Table 2. Proposed composite samples for American eel - REVISED

Reach	Location ID	Trap ID	Collection Method	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	EPA No.	Sample ID (tissue type 1)	Sample ID (tissue type 2)	EPA sample	Notes	Reason for exclusion from composite?	Specimen Comments
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR254	2	1	111						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR255	3	1	115						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR256	3	1	133						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR257	4	1	133						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR258	3	1	124						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR259	2	1	105						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR260	2	1	107						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR261	2	1	105						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR262	3	1	123						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR263	6	2	154						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR264	4	1	129						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR265	3	1	126						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR266	2	1	104						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR267	2	1	104						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR268	1	0	92						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR346	18	6	226						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR347	33	11	258						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR348	31	10	268						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR349	6	2	153						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR350	13	4	189						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR351	3	1	117						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR352	5	2	136						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR353	25	8	245						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR354	11	4	180						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR355	15	5	207						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR356	12	4	196						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR357	8	3	168						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR358	18	6	215						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR359	6	2	156						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR360	7	2	167						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR361	8	3	167						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR362	30	10	269						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR363	33	11	278						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR364	37	12	267						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR365	5	2	142						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR366	1	0	98						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR367	16	5	208						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR368	17	6	223						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR369	10	3	179						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR370	9	3	191						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR371	12	4	202						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR372	8	3	165						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR373	36	12	278						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR374	26	9	245						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR375	9	3	176						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR376	26	9	255						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR380	13	4	202						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR381	14	5	193						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR382	15	5	127						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR383	28	9	241						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR384	4	1	127						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR385	14	5	195						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR386	19	6	218						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR388	14	5	193						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR389	30	10	256						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR390	24	8	225						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR391	38	13	277	203 LPR8-ARFT-Comp22		fillet	CPG added sample (Comp22)		< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR392	28	9	245						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR393	4	1	130						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR394	22	7	220						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR395	31	10	262						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR396	7	2	166						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR397	25	8	234						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR398	29	10	272						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR399	8	3	167						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR400	11	4	200						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR401	2	1	110						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR402	34	11	273						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR403	10	3	194						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR404	23	8	241						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR405	4	1	133						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR406	9	3	182						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR407	6	2	150						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR408	14	5	194						< 279 mm	

Table 2. Proposed composite samples for American eel - REVISED

Reach	Location ID	Trap ID	Collection Method	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	EPA No.	Sample ID (tissue type 1)	Sample ID (tissue type 2)	EPA sample	Notes	Reason for exclusion from composite?	Specimen Comments
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR409	1	0	96						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR410	3	1	113						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR411	18	6	221						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR412	7	2	152						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR413	4	1	138						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR414	24	8	245						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR415	3	1	125						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR416	7	2	156						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR417	33	11	274						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR418	4	1	130						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR419	22	7	223						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR420	34	11	270						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR422	4	1	134						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR423	31	10	241						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR424	11	4	181						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR425	24	8	244						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR426	21	7	233						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR427	6	2	145						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR428	35	12	273						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR429	30	10	245						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR430	25	8	246						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR431	29	10	258						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR432	25	8	254						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR433	28	9	254						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR434	36	12	276						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR435	47	16	274	44		LPR8-ARWB-Comp19	WB	includes fish < 279 mm (> 254 mm)	< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR436	2	1	95						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR437	8	3	167						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR438	30	10	254						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR439	2	1	110						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR440	12	4	185						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR441	22	7	227						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR442	15	5	202						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR443	10	3	172						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR444	11	4	202						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR445	24	8	234						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR446	28	9	235						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR447	27	9	261						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR448	4	1	126						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR449	2	1	100						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR450	6	2	147						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR451	9	3	160						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR452	4	1	129						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR453	6	2	148						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR454	3	1	117						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR455	42	14	264	203	LPR8-ARFT-Comp22		fillet	CPG added sample (Comp22)	< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR456	7	2	158						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR457	8	3	170						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR458	22	7	227						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR459	6	2	154						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR461	32	11	247						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR462	29	10	232						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR464	27	9	247						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR465	34	11	269						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR466	33	11	273						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR467	9	3	178						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR468	20	7	237						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR469	5	2	153						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR471	5	2	156						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR472	6	2	162						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR473	14	5	206						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR474	35	12	251						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR475	2	1	125						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR476	3	1	122						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR477	4	1	131						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR478	8	3	174						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR479	33	11	245						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR480	23	8	233						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR481	16	5	224						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR482	18	6	224						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR484	10	3	210						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR485	36	12	262						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR486	6	2	161						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR488	23	8	244						< 279 mm	

Table 2. Proposed composite samples for American eel - REVISED

Reach	Location ID	Trap ID	Collection Method	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	EPA No.	Sample ID (tissue type 1)	Sample ID (tissue type 2)	EPA sample	Notes	Reason for exclusion from composite?	Specimen Comments
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR489	10	3	183						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR490	10	3	182						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR491	7	2	179						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR492	15	5	213						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR493	2	1	111						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR494	24	8	235						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR495	11	4	233						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR496	5	2	146						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR498	6	2	156						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR499	6	2	151						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR500	14	5	213						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR501	21	7	247						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR502	2	1	117						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR503	28	9	254						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR504	4	1	148						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR505	12	4	208						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR506	2	1	116						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR507	2	1	120						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR508	3	1	132						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR509	8	3	174						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR510	7	2	171						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR511	6	2	171						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR512	7	2	173						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR513	4	1	138						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR514	10	3	181						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR516	20	7	223						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR517	7	2	161						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR518	2	1	112						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR519	7	2	171						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR520	2	1	111						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR521	2	1	112						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR522	19	6	220						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR523	3	1	125						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR524	10	3	204						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR525	1	0	94						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR526	2	1	106						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR527	6	2	153						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR528	4	1	132						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR529	8	3	175						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR530	30	10	259						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR531	9	3	165						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR532	19	6	225						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR533	4	1	125						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR534	25	8	246						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR535	36	12	273						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR538	32	11	269						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR539	26	9	240						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR540	40	13	278	203	LPR8-ARFT-Comp22		fillet	CPG added sample (Comp22)	< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR541	34	11	267						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR542	22	7	232						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR543	32	11	244						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR544	38	13	274						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR545	10	3	187						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR546	6	2	156						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR547	4	1	131						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR549	28	9	263						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR550	14	5	220						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR551	36	12	261	203	LPR8-ARFT-Comp22		fillet	CPG added sample (Comp22)	< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR552	14	5	202						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR553	24	8	249						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR554	30	10	263						< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR556	10	3	188						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR557	34	11	252						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR558	3	1	126						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR559	10	3	181						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR560	14	5	203						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR561	14	5	224						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR562	6	2	154						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR563	14	5	203						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR564	10	3	178						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR565	10	3	182						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR566	8	3	166						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR567	6	2	157						< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR568	20	7	233						< 279 mm	

Table 2. Proposed composite samples for American eel - REVISED

Reach	Location ID	Trap ID	Collection Method	Specimen ID	Weight (g)	33% of Wgt	Length (mm)	EPA No.	Sample ID (tissue type 1)	Sample ID (tissue type 2)	EPA sample	Notes	Reason for exclusion from composite?	Specimen Comments
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR569	10		3	190					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR570	14		5	212					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR571	10		3	192					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR572	9		3	177					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR573	13		4	216					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR574	13		4	195					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR575	33		11	255					< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR576	12		4	200					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR577	12		4	194					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR578	19		6	230					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR579	13		4	210					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR580	12		4	184					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR581	11		4	188					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR582	36		12	271					< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR583	19		6	215					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR584	10		3	181					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR585	14		5	200					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR586	20		7	230					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR587	12		4	192					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR588	21		7	224					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR589	6		2	150					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR590	22		7	227					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR591	39		13	275	203 LPR8-ARFT-Comp22		fillet	CPG added sample (Comp22)	< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR592	31		10	265					< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR593	28		9	260					< 279 mm (> 254 mm)	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR594	4		1	126					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR595	9		3	175					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR596	13		4	200					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR597	6		2	155					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR598	9		3	185					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR599	5		2	145					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR600	3		1	125					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR601	3		1	125					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR602	5		2	145					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR603	5		2	150					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR604	3		1	131					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR605	4		1	135					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR606	6		2	159					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR607	5		2	146					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR608	4		1	131					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR609	11		4	190					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR610	4		1	140					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR611	9		3	170					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR612	3		1	125					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR613	4		1	140					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR614	8		3	170					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR615	9		3	180					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR616	5		2	145					< 279 mm	
LPR8	LPR8Z	LPR8Z-A	Backpack Electrofi	LPR8Z-AR617	2		1	100					< 279 mm	

Ref No.	Species	Notes	Ind/Comp	FishID	BW	length	Size	Type1	Type2
1	American eel	USEPA & Partner Agency Agree	Composite	LPR1G-AR075 + LPR1G-AR080	764	550 & 580	C	fillet	
2	American eel	USEPA & Partner Agency Agree	Individual	LPR1G-AR085	452	575	C	fillet	offal
3	American eel	USEPA & Partner Agency Agree	Composite	LPR1G-AR646+LPR1G-AR077	638	520 & 529	B	fillet	
4	American eel	USEPA & Partner Agency Agree	Composite	LPR1Q-AR081+LPR1Q-AR082+LPR1Q-AR083	64+46+60=170	392 & 287 & 340	A		whole body
5	American eel	USEPA & Partner Agency Agree	Composite	LPR2F-AR084+LPR2G-AR079+LPR2N-AR078	118+232+250= 600	400 & 470 & 508	B	fillet	offal
6	American eel	USEPA & Partner Agency Agree	Composite	LPR3L-AR006+LPR3L-AR007	360+290=650	520 & 525	B	fillet	
7	American eel	USEPA & Partner Agency Agree	Individual	LPR3L-AR010	490	620	C	fillet	
8	American eel	USEPA & Partner Agency Agree	Individual	LPR3P-AR001	375	551	C		whole body
9	American eel	USEPA & Partner Agency Agree	Individual	LPR3P-AR014	850	750	D	fillet	
10	American eel	USEPA & Partner Agency Agree	Composite	LPR3Q-AR004+LPR3Q-AR013	390+196=586	450 & 500	B	fillet	
11	American eel	USEPA & Partner Agency Agree	Individual	LPR3Q-AR005	438	600	C	fillet	
12	American eel	USEPA & Partner Agency Agree	Individual	LPR3Q-AR012	420	635	D		whole body
101	American eel	All agree	Individual	LPR3L-AR009	285	480	B		whole body
201	American eel	possible additional sample	Composite	LPR3P-AR002 + LPR3P-AR003	360 + 290 = 650	520 + 525			fillet
13	American eel	USEPA & Partner Agency Agree	Individual	LPR4F-AR022	616	662	D	fillet	
14	American eel	USEPA & Partner Agency Agree	Individual	LPR4M-AR035	656	680	D	fillet	
15	American eel	All agree	Individual	LPR4M-AR041 + LPR4N-032	468 + 362 = 830	610 + 561	C	fillet	
16	American eel	USEPA & Partner Agency Agree	Individual	LPR4N-AR024	318	511	C		whole body
18	American eel	USEPA & Partner Agency Agree	Individual	LPR4N-AR034	622	463	B	fillet	
19	American eel	All agree	Individual	LPR4N-AR060	352	550	C		whole body
20	American eel	USEPA & Partner Agency Agree	Individual	LPR4Q-AR025	366	561	C		whole body
21	American eel	All agree	Individual	LPR4Q-AR026	608	650	D	fillet	
22	American eel	All agree	Individual	LPR4Q-AR044	666	652	D	fillet	
23	American eel	USEPA & Partner Agency Agree	Individual	LPR4Q-AR043	422	603	C		whole body
102	American eel	All agree	Composite	LPR4M-AR042+LPR4M-AR056	226+244=470	482+480	B	fillet	
24	American eel	USEPA & Partner Agency Agree	Composite	LPR5F-AR020 + LPR5F-AR028	260+380=640	490 & 564	C	fillet	
25	American eel	USEPA & Partner Agency Agree	Individual	LPR5F-AR021	518	578	C	fillet	
26	American eel	All agree	Individual	LPR5F-AR048	542	615	C	fillet	
27	American eel	USEPA & Partner Agency Agree	Individual	LPR5F-AR049	638	675	D	fillet	
28	American eel	USEPA & Partner Agency Agree	Individual	LPR5H-AR030	524	592	C	fillet	
29	American eel	USEPA & Partner Agency Agree	Composite	LPR5H-AR037 + LPR5H-AR038	244+246=490	460 & 473	B	fillet	
30	American eel	USEPA & Partner Agency Agree	Individual	LPR5H-AR062	390	560	C		whole body
31	American eel	USEPA & Partner Agency Agree	Individual	LPR5J-AR039	370	550	C		whole body
32	American eel	USEPA & Partner Agency Agree	Individual	LPR5J-AR040	506	610	C	fillet	
103	American eel	All agree	Composite	LPR5A-AR052+LPR5A-AR058+LPR5A-AR057	68+42+52=162	314+270+300	A		whole body
104	American eel	All agree	Individual	LPR5M-AR086	442	570	C	fillet	
105	American eel	All agree	Composite	LPR5H-AR031+LPR5H-AR061	206+254=460	475+480	B	fillet	
33	American eel	USEPA & Partner Agency Agree	Individual	LPR6O-AR069	214	449	B		whole body
34	American eel	USEPA & Partner Agency Agree	Individual	LPR6R-AR074	258	481	B		whole body
35	American eel	USEPA & Partner Agency Agree	Individual	LPR6O-AR073	778	741	D	fillet	
36	American eel	USEPA & Partner Agency Agree	Individual	LPR6P-AR065	580	590	C	fillet	
37	American eel	USEPA & Partner Agency Agree	Individual	LPR7H-AR070	126	373	A		whole body
38	American eel	USEPA & Partner Agency Agree	Individual	LPR7O-AR071	600	624	D	fillet	
39	American eel	USEPA & Partner Agency Agree	Composite	LPR8U-AR162+LPR8U-AR161+LPR8U-AR167+LPR-AR160+LPR8U-AR163	44+36+36+32+28=176	290 & 310 & 287 & 269 & 264	A		whole body
40	American eel	USEPA & Partner Agency Agree	Composite	LPR8V-AR337+LPR8V-AR107+LPR8V-AR178+LPR8V-AR175	44+44+38+36=162	282 & 277 & 273 & 268	A		whole body
41	American eel	USEPA & Partner Agency Agree	Composite	LPR8X-AR291+LPR8X-AR097+LPR8X-AR630+LPR8X-AR098	44+40+34+34=152	282 & 268 & 277 & 273	A		whole body
42	American eel	USEPA & Partner Agency Agree	Composite	LPR8Y-AR297 + LPR8Y-AR-319 + LPR8Z-AR224 + LPR8Z-AR-378 + LPR8Z-AR387 + LPR8Y-AR108 + LPR8Y-AR280 + LPR8Z-AR191 + LPR8Z-AR195	56+54+54+53+53+50+49+48+48=465	308 & 312 & 327 & 289 & 330 & 305 & 286 & 278 & 289	A	fillet	
43	American eel	USEPA & Partner Agency Agree	Composite	LPR8Y-AR317+LPR8Y-AR119+LPR8Y-AR325+LPR8Y-AR112	46+46+44+42=178	282 & 288 & 271 & 278	A		whole body
44	American eel	USEPA & Partner Agency Agree	Composite	LPR8Z-AR221+LPR8Z-AR226+LPR8Z-AR377+LPR8Z-AR435	48+48+47+47=190	282 & 294 & 294 & 274	A		whole body
45	American eel	USEPA & Partner Agency Agree	Composite	LPR8Z-AR421 + LPR8Z-AR460 + LPR8Z-AR537 + LPR8Y-AR318 + LPR8V-AR173 + LPR8Y-AR286	160+78+70+66+64+57=495	396 & 340 & 324 & 317 & 325 & 308	A	fillet	
202	American eel	possible additional sample	Composite	LPR8Z-AR132 + LPR8Z-AR201 + LPR8Z-AR204 + LPR8Z-AR379 + LPR8Z-AR463 + LPR8Z-AR470 + LPR8Z-AR483 + LPR8Z-AR487 + LPR8Z-AR548 + LPR8Z-AR555	396				fillet
203	American eel	possible additional sample	Composite	LPR8Z-AR134 + LPR8Z-AR497 + LPR8Z-AR515 + LPR8Z-AR536 + LPR8Z-AR140 + LPR8Z-AR222 + LPR8Z-AR391 + LPR8Z-AR455 + LPR8Z-AR540 + LPR8Z-AR551 + LPR8Z-AR591	397				fillet

Size Class Definitions

A = <400 mm
B = 400-525 mm
C = 526-620 mm
D = >620 mm

HH	Ind. Fillet	Comp. Fillet	Total
A	0	2	2
B	1	7	8
C	10	1	11
D	8	0	8
			29

Eco	Whole body	Offal	Total
A	8	0	8
B	3	1	4
C	7	1	8
D	1	0	1
			21

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American eel	USEPA & Partner Agency Agree		Composite	LPR8Y-AR297 + LPR8Y-AR-319 + LPR8Z-AR224 + LPR8Z-AR-378 + LPR8Z-AR387 + LPR8Y-AR108 + LPR8Y-AR280 + LPR8Z-AR191 + LPR8Z-AR195	56+54+54+53+53+50+49+48+48=465	308 & 312 & 327 & 289 & 330 & 305 & 286 & 278 & 289	A	fillet	
	USEPA & Partner Agency Agree		Composite	LPR8Z-AR421 + LPR8Z-AR460 + LPR8Z-AR537 + LPR8Y-AR318 + LPR8V-AR173 + LPR8Y-AR286	160+78+70+66+64+57=495	396 & 340 & 324 & 317 & 325 & 308	A	fillet	
	USEPA & Partner Agency Agree		Composite	LPR1G-AR646+LPR1G-AR077	638	520 & 529	B	fillet	
	USEPA & Partner Agency Agree		Composite	LPR2F-AR084+LPR2G-AR079+LPR2N-AR078	118+232+250= 600	400 & 470 & 508	B	fillet	offal
	USEPA & Partner Agency Agree		Composite	LPR3L-AR006+LPR3L-AR007	360+290=650	520 & 525	B	fillet	
	USEPA & Partner Agency Agree		Composite	LPR3Q-AR004+LPR3Q-AR013	390+196=586	450 & 500	B	fillet	
	New Sample	OK	Composite	LPR4M-AR042+LPR4M-AR056	226+244=470	482+480	B	fillet	
	USEPA & Partner Agency Agree		Individual	LPR4N-AR034	622	463	B	fillet	
	New Sample	OK	Composite	LPR5H-AR031+LPR5H-AR061	206+254=460	475+480	B	fillet	
	USEPA & Partner Agency Agree		Composite	LPR5H-AR037 + LPR5H-AR038	244+246=490	460 & 473	B	fillet	
	USEPA & Partner Agency Agree		Composite	LPR1G-AR075 + LPR1G-AR080	764	550 & 580	C	fillet	
	USEPA & Partner Agency Agree		Individual	LPR1G-AR085	452	575	C	fillet	offal
	USEPA & Partner Agency Agree		Individual	LPR3L-AR010	490	620	C	fillet	
	USEPA & Partner Agency Agree		Individual	LPR3Q-AR005	438	600	C	fillet	
	Sample not proposed for analysis	Retain - add fish LPR4N-AR032	Individual	LPR4M-AR041	468	610	C	fillet	
	New Sample	Remove sample	Composite	LPR4N-AR032+LPR4N-AR060	362+352=714	561+550	C	fillet	
	USEPA & Partner Agency Agree		Composite	LPR5F-AR020 + LPR5F-AR028	260+380=640	490 & 564	C	fillet	
	USEPA & Partner Agency Agree		Individual	LPR5F-AR021	518	578	C	fillet	
	Sample not proposed for analysis	Retain	Individual	LPR5F-AR048	542	615	C	fillet	
	USEPA & Partner Agency Agree		Individual	LPR5H-AR030	524	592	C	fillet	
	USEPA & Partner Agency Agree		Individual	LPR5J-AR040	506	610	C	fillet	
	New Sample	OK	Individual	LPR5M-AR086	442	570	C	fillet	
	USEPA & Partner Agency Agree		Individual	LPR6P-AR065	580	590	C	fillet	
	USEPA & Partner Agency Agree		Individual	LPR3P-AR014	850	750	D	fillet	
	USEPA & Partner Agency Agree		Individual	LPR4F-AR022	616	662	D	fillet	
	USEPA & Partner Agency Agree		Individual	LPR4M-AR035	656	680	D	fillet	
	Sample not proposed for analysis	Retain	Individual	LPR4Q-AR026	608	650	D	fillet	
	Sample not proposed for analysis	Retain	Individual	LPR4Q-AR044	666	652	D	fillet	
	USEPA & Partner Agency Agree		Individual	LPR5F-AR049	638	675	D	fillet	
	USEPA & Partner Agency Agree		Individual	LPR6O-AR073	778	741	D	fillet	

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	USEPA & Partner Agency Agree		Individual	LPR7O-AR071	600	624	D	fillet	
	USEPA & Partner Agency Agree		Composite	LPR1Q-AR081+LPR1Q-AR082+LPR1Q-AR083	64+46+60=170	392 & 287 & 340	A		whole body
	New Sample	OK	Composite	LPR5A-AR052+LPR5A-AR058+LPR5A-AR057	68+42+52=162	314+270+300	A		whole body
	USEPA & Partner Agency Agree		Individual	LPR7H-AR070	126	373	A		whole body
	USEPA & Partner Agency Agree		Composite	LPR8U-AR162+LPR8U-AR161+LPR8U-AR167+LPR-AR160+LPR8U-AR163	44+36+36+32+28=176	290 & 310 & 287 & 269 & 264	A		whole body
	USEPA & Partner Agency Agree		Composite	LPR8V-AR337+LPR8V-AR107+LPR8V-AR178+LPR8V-AR175	44+44+38+36=162	282 & 277 & 273 & 268	A		whole body
	USEPA & Partner Agency Agree		Composite	LPR8X-AR291+LPR8X-AR097+LPR8X-AR630+LPR8X-AR098	44+40+34+34=152	282 & 268 & 277 & 273	A		whole body
	USEPA & Partner Agency Agree		Composite	LPR8Y-AR317+LPR8Y-AR119+LPR8Y-AR325+LPR8Y-AR112	46+46+44+42=178	282 & 288 & 271 & 278	A		whole body
			Composite	LPR8Z-AR221+LPR8Z-AR226+LPR8Z-AR377+LPR8Z-AR435	48+48+47+47=190	282 & 294 & 294 & 274	A		whole body
	New Sample	OK	Individual	LPR3L-AR009	285	480	B		whole body
	USEPA & Partner Agency Agree		Individual	LPR6O-AR069	214	449	B		whole body
	USEPA & Partner Agency Agree		Individual	LPR6R-AR074	258	481	B		whole body
	USEPA & Partner Agency Agree		Individual	LPR3P-AR001	375	551	C		whole body
	USEPA & Partner Agency Agree		Individual	LPR4N-AR024	318	511	C		whole body
	Sample combined with LPR4N-AR032	Retain	Individual	LPR4N-AR060	352	550	C		whole body
	USEPA & Partner Agency Agree		Individual	LPR4Q-AR025	366	561	C		whole body
	USEPA & Partner Agency Agree		Individual	LPR4Q-AR043	422	603	C		whole body
	USEPA & Partner Agency Agree		Individual	LPR5H-AR062	390	560	C		whole body
	USEPA & Partner Agency Agree		Individual	LPR5J-AR039	370	550	C		whole body
	USEPA & Partner Agency Agree		Individual	LPR3Q-AR012	420	635	D		whole body

APPENDIX B. PROTOCOL MODIFICATION FORMS

Protocol Modification Form: Fish/Decapod QAPP No. 1

Project Name and Number: Passaic RI 09.58.02.31

Material to be Sampled: Tissue

Measurement Parameter: Semivolatile organic compounds (SVOCs) and alkylated polycyclic aromatic hydrocarbons (PAHs).

Standard Procedure for Field Collection & Laboratory Analysis (cite reference):

In the Fish/Decapod QAPP, Worksheet Nos. 12 and 28 indicate a requirement for certified reference materials (CRMs) for SVOCs and alkylated PAHs in tissue. CRMs for SVOCs and alkylated PAHs in tissue are not a requirement in the Benthic QAPP.

Reason for Change in Field Procedure or Analysis Variation:

Appropriate CRMs for tissue are not available for SVOCs and alkylated PAHs. Only CRMs that contain the parent PAHs are available and Alpha Analytical is only conducting the alkylated PAH analysis. Furthermore, there have been no CRMs identified with concentrations high enough for detection with a full SVOC scan under USEPA Method SW-846 8270.

Variation from Field or Analytical Procedure:

CRMs will not be used as quality control samples for the SVOC and alkylated PAH tissue analyses associated with the Fish/Decapod QAPP.

Special Equipment, Materials or Personnel Required:

None.

Initiator's Name:



Date: 10/28/09

Project Manager:



Date: 10/28/09

QA Manager:



Date: 10/28/09

USEPA Authority:

Date:

Protocol Modification Form: Fish/Decapod QAPP No. 7

Project Name and Number: Passaic RI 09.58.02.31

Material to be Analyzed: Tissue

Measurement Parameter: Alkylated polynuclear aromatic hydrocarbons (PAHs)

Standard Procedure for Field Collection & Laboratory Analysis (cite reference):

Fish/Decapod QAPP Worksheet Nos. 12 and 28 and Attachment T26, Standard Operating Procedure (SOP) No. O-008. Analysis of Parent and Alkylated Polynuclear Aromatic Hydrocarbons, Selected Heterocyclic Compounds, Steranes, Triterpanes, and Triaromatic Steroids by GC/MS – SIM, Revision 4, 10/08/08.

Reason for Change in Field Procedure or Analysis Variation:

Alpha Analytical (Alpha) revised their alkylated PAH SOP to correct the method referenced in the SOP. Revision 4 of the SOP incorrectly referenced USEPA SW-846 8270D. The SOP was revised (Revision 5, dated 10/12/09) to correctly reference USEPA SW-846 8270C.

Variation from Field or Analytical Procedure:

Alpha is conducting USEPA Method SW-846 8270C rather than 8270D as consistent with the attached revised SOP (Revision 5, dated 10/12/09). The revised SOP also sets more stringent laboratory control spike (LCS) limits of 50-130% recovery than the LCS limits of 50-150% recovery referenced in Revision 4 of the SOP and detailed in Worksheet Nos. 12 and 28 of the Fish/Decapod QAPP. The revised SOP (Attachment T26) is attached to this protocol modification form.

Special Equipment, Materials or Personnel Required:

None.

Initiator's Name:



Date: 12/3/09

Project Manager:



Date: 12/3/09

QA Manager:



Date: 12/3/09

USEPA Authority:

Date: _____

**Analysis of Parent and Alkylated Polynuclear Aromatic Hydrocarbons,
Selected Heterocyclic Compounds, Steranes, Triterpanes and Triaromatic
Steroids by GC / MS - SIM**

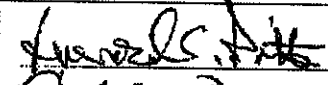
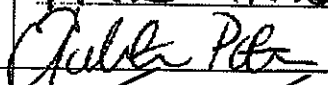
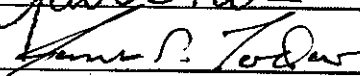
1.0 Identification of Test Method

This standard operating procedure (SOP) is based on the following analytical test methods:

- 1.1 USEPA, Method 8270C Semivolatile Organic Compounds by Gas Chromatography / Mass Spectrometry (GC/MS)" in Test Methods for Evaluating Solid Waste, SW846, Third Edition (USEPA Office of Solid Waste and Emergency Response, Washington, DC, September 1994).
- 1.2 Federal Register 2003, 40 CFR, Chapter I – EPA. Part 300: National Oil and Hazardous Substances Pollution Contingency Plan, Appendix C to Part 300, Chemical Analysis of Oil Composition, May 28, 2003.

2.0 Applicable Matrix or Matrices

- 2.1 This standard operating procedure (SOP) describes a method for analyzing sample extracts for parent and alkylated polynuclear aromatic hydrocarbons (PAHs), selected heterocyclic compounds, Steranes, Triterpanes, and Triaromatic Steroids by gas chromatography / mass spectrometry with selected ion monitoring (GC/MS-SIM). This method is appropriate for determining these compounds in the extracts of water, soil, sediment, tissue, mounds, sludges and petroleum products.

Approval Signatures		
Laboratory Director		Date: 10/12/09
Section Supervisor		Date: 10/12/09
Quality Assurance Officer		Date: 10/12/09

***This SOP is printed from an electronic file.
A signed original is available in the files of Alpha Analytical Lab***

3.0 Detection and Quantitation Limits

- 3.1 Method Detection Limits (MDLs) are determined as described in Alpha Analytical SOP# 08-05. MDLs are performed annually or if there is a major change in instrumentation or method procedure.
- 3.2 The Practical Quantitation Limit (PQL) or Reporting Limit (RL) is equivalent to the lowest standard concentration, analyzed with and included in the initial calibration curve. For most organic analyses, the PQL or RL is equivalent to 3 to 5 times the determined MDL.

4.0 Scope and Application

- 4.1 This method is applicable to the analysis of sample extracts for parent and alkylated polynuclear aromatic hydrocarbons (PAHs), selected heterocyclic compounds, steranes, triterpanes and triaromatic steroids by gas chromatography / mass spectrometry with selected ion monitoring (GC/MS-SIM). Target analytes listed in Tables IA and IB are determined and measured in the concentration range of 10 to 10,000 parts per trillion (ng/L) for water samples, and 1 to 1,000 parts per billion (ug/Kg) for soil, sediment and tissue samples, and 2 to 2,000 parts per million (mg/Kg) in petroleum product samples. Analytes detected over these ranges will be diluted and re-analyzed for accurate quantitation. Lower detection limits can be achieved if large volume injection (LVI, from 1uL to 50uL volume injections) techniques are employed. This technique requires Client and project specific requests.
- 4.2 This method is intended to assist in the identification or “fingerprinting” of source material against a potentially contaminated site and can also provide information to assist in the identification of petrogenic or pyrogenic contamination.

5.0 Summary of Method

- 5.1 An aliquot of a well mixed, homogeneous aqueous, solid, tissue or petroleum sample is accurately measured or weighed for sample preparation. Generally, 1L of water sample, 15-30g of soil, sediment or tissue sample, and 0.1g of petroleum sample. Please refer to the appropriate Alpha Analytical SOPs for extraction methods and sample preparation information:
- *Method 3510C – Extraction of Water Samples by Separatory Funnel* (OP-001),
 - *Tissue Preparation and Homogenization* (OP-003) and *Tissue Extraction by Tissuemizer Probe* (OP-019)
 - *Shaker Table Extraction* (OP-013)
 - *Waste Dilution and Oily Material Preparation* (O-018)
 - *Gravimetric Determination* (OP-017)

Water, soil/sediment, tissue and petroleum samples are spiked with surrogate compounds and extracted using methylene chloride. Sample extracts are concentrated and preliminarily screened for oil content following Alpha Analytical SOP *Gravimetric Determination* (OP-017). Gravimetric screening is essential at times to ensure the analytical equipment, as well as the cleanup columns, are not overloaded with oil laden samples. Samples may be cleaned by *Alumina Column Cleanup* (OP-009), or they may then be exchanged into hexane for optional cleanup and/or fractionation into saturated (F1) and aromatic (F2) fractions prior to analysis. See the SOP *Silica Fractionation and Cleanup* (NF02-001) for additional sample cleanup information and details.

- 5.2 After cleanup, the extracts are concentrated to an appropriate final volume based on oil content as determined by gravimetric weighing, spiked with internal standards, and analyzed by GC/MS-SIM. Analytes are introduced into the GC/MS by injecting a known volume of the calibration standards, quality control samples, and sample extracts into the GC equipped with a narrow-bore capillary column. The GC column is temperature programmed to separate the analytes, which are then detected with a mass spectrometer operating in the selective ion mode. Identification of target analytes is accomplished by comparing retention times and mass spectra with the retention times and electron impact spectra of the calibration standards. Concentrations are determined using mean relative response factors from a multi-level calibration curve. Response factors for target analytes and surrogate compounds are determined relative to the internal standards. Multi-component analytes (alkylated PAHs) are assigned the response factors of their unsubstituted, parent compounds. Sterane compounds are assigned the response factor of the compound 5B(H)-Cholane. Triterpane compounds are assigned the response factor of the compound 17A(H), 21B(H)-Hopane.

6.0 Definitions

Accuracy

A determination of how close a measured value is to a known true value, usually measured as the percent recovery of a spike analysis.

Aliquot

A measured portion of a sample taken for analysis.

Analyte

The chemical element or compound an analyst seeks to determine; the chemical element of interest.

Analytical Batch

The basic unit for analytical quality control, defined as samples that are analyzed together with the same method sequence and the same lots of reagents and with the manipulations common to each sample within the same time period or in continuous sequential time periods. Samples in each batch should be of similar composition (e.g., groundwater, sludge, and ash).

Analytical Sample

Any solution or media introduced into an instrument, on which an analysis is performed, excluding instrument calibration, initial calibration verification and continuing calibration verification. The following are all analytical samples: undiluted and diluted samples, predigestion spike samples, duplicate samples, serial dilution samplers, analytical spike samples, postdigestion spike samples, interference check samples, laboratory control sample, preparation blank, and linear range analysis sample (LRS).

Area

A term used in gas chromatography that indicates the peak area of a compound exiting a chromatographic column. The size or area of the peak is proportional to the amount of analyte in the sample.

Assessment

The evaluation process used to measure the performance or effectiveness of a system and its elements. Assessment is used as an all-inclusive term to denote any of the following: performance, systems, data and compliance audits, management systems reviews, peer reviews, inspections, or spot assessments.

Audit

A planned and documented investigative evaluation of an item or process to determine its adequacy and effectiveness as well as compliance with established procedures.

Background Correction

A technique usually employed relative to metals analysis, which compensates for variable background contribution to the instrument signal in the determination of trace elements.

Bias

A systematic (consistent) error in test results. Bias is expressed as the difference between the population mean and the true or reference value, or as estimated from sample statistics, the difference between the sample average and the reference value.

Blank

An artificial sample designed to monitor the introduction of artifacts into the measurement process. For aqueous samples, reagent water is used as a blank matrix. A universal matrix does not exist for solid samples; therefore, no matrix is routinely used. There are several types of blanks, which monitor a variety of processes: - A *method blank* is taken through sample preparation and analysis only. It is a test for contamination in the laboratory procedure. - A *storage blank* is stored and analyzed with samples at the laboratory. It is a test for contamination in sample storage as well as sample preparation and analysis. - A *trip blank* is shipped to and from the field with the sample containers. It is not opened in the field and, therefore, provides a test for contamination from sample preservation, site conditions, and transport as well as sample storage, preparation, and analysis. It is most commonly used for volatile organics. - A *field blank*

is opened in the field and tests for contamination from the atmosphere as well as those activities listed under *trip blank*.

Blind Performance Evaluation Sample

A sample either submitted to the laboratory or prepared in the laboratory whereby the concentrations of parameters of concern are known by the preparer and not by the laboratory.

BNA

Base, neutral and acid extractable compounds. The terms base, neutral and acid refer to the pH condition of the sample undergoing extraction. Certain compounds extract more efficiently from water under acidic or basic conditions.

Calibration

The systematic determination of the relationship of the response of the measurement system to the concentration of the analyte of interest. Instrument calibration performed before any samples are analyzed is called the initial calibration. Subsequent checks on the instrument calibration performed throughout analysis are called continuing calibration. Calibration is also the act of making a scheduled comparison of instrument performance against national standards for instruments which measure physical parameters such as mass, time, and temperature.

Calibration Curve

The graphical relationship between the known values for a series of calibration standards and instrument responses.

Calibration Factor (CF) (Also see RF and RRF)

The ratio of the instrument response of an analyte to the amount injected. CFs are used in external standard calibrations.

Calibration Standard

A material used to quantitate the relationship between the output of a sensor and a property to be measured. Calibration standards should be traceable to Standard Reference Materials (provided by NIST, EPA, or other recognized standards agencies) or a primary standard.

Capillary Column GC

A GC technique that uses a very long (30-60m) small id (0.2mm) glass column instead of the traditional packed GC column (1.8M by 2mm) for separation of chemicals.

CERCLA

The Comprehensive Environmental Response, Compensation and Liability Act, also known as 'Superfund'. Enacted December 11, 1980, CERCLA provides for identification and cleanup of hazardous materials released over the land and into the air, waterways and groundwater. It covers areas affected by newly released materials and older leaking or abandoned dump sites. CERCLA established the Superfund, a trust fund, to help pay for cleanup of hazardous materials sites. The EPA has authority to collect cleanup costs from those who release the waste material.
Cleanup

funds come from fines and penalties, from taxes on chemical/petrochemical feed stocks, and the U.S. Department of the Treasury.

Certified Reference Material

A reference material accompanied by a certificate issued by an organization certifying the contents and concentration(s) of the material. (See also Standard Reference Material.)

Chain of Custody

Procedures and associated documents designed to trace the custody of a sample from the point of origin to final disposition, with the intent of legally demonstrating that custody remained intact and that tampering or substitutions were precluded.

Chromatogram

A graph representing the signal output of an instrument (GC or HPLC) which can be used to identify organic chemicals by peak retention time (RT) and to quantitate by peak size.

Clean Water Act (CWA)

Regulates the discharge of nontoxic and toxic pollutants into surface waters. The CWA became effective November 18, 1972, and has been amended significantly since then. Its ultimate goal is to eliminate all discharges into surface waters. EPA sets guidelines and state agencies issue permits (e.g., National Pollutant Discharge Elimination System permits) specifying the types of control equipment and allowable discharges for each facility.

Code of Federal Regulations (CFR)

A collection of the federal regulations established by law and published by the Government Printing Office. Environmental regulations are codified in Title 40 of the CFR.

Coefficient of Variation (Relative Standard Deviation)

A measure of precision (relative dispersion). It is equal to the standard deviation divided by the mean and multiplied by 100 to give a percentage value.

Co-elution

When two organics determined by GC give the same retention time (RT) and cannot be differentiated.

Comparability

Expresses the confidence with which one data set can be compared to another data set measuring the same property. Comparability is assured through the use of established and approved analytical methods, consistency in the basis of analysis (wet weight, volume, etc.) and consistency in reporting units (ppm, ppb, etc.).

Completeness

The amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under correct normal operations. It is usually expressed as a percentage.

Composite

A sample composed of two or more increments.

Concentration

The amount of chemical (analyte) present per amount of sample. For trace analyses, usually expressed as ppm, ppb, or ppt.

Confirmation

In gas chromatography, an unknown compound in a sample is identified on the basis of its retention time on a specific chromatographic column. Because several compounds may exhibit the same retention time on a given column, a secondary confirmation on a different column or detector is often recommended for additional confidence in the compound identification. This additional confirmation is often referred to as “dual-column” or “second-column” confirmation.

Contract Laboratory Program (CLP)

A program coordinated through the EPA to provide a wide range of analytical services by commercial laboratories in support of investigation, remediation, and enforcement actions at Superfund sites. Laboratories participating in this program are under contract to the EPA and must follow very specific analytical protocols during analyses and data delivery, as specified in the Statement of Work associated with the contract.

Control Chart

A graphical representation of analytical accuracy. Displays the arithmetic mean of a data set, the upper and lower warning limits and the upper and lower control limits.

Corrective Action

A measure taken to rectify conditions adverse to quality and, where necessary, to preclude their recurrence.

Correlation Coefficient

The correlation coefficient is a determination of how closely data “fits” a straight line. It is a number between -1 and 1 that indicates the degree of linear relationship between two sets of numbers.

Data Quality Objective (DQO)

During the planning phase of a project requiring laboratory support, the data user must establish the quality of data required from the investigation. Such statements of data quality are known as DQOs. Qualitative and quantitative statements about the data required to support specific decisions or regulatory actions, DQOs must take into account sampling considerations as well as analytical protocols.

Data Validation

See Validation.

Decafluorotriphenylphosphine (DFTPP)

An organic compound utilized in several GC/MS methods to establish proper mass spectral instrument performance for semi-volatile analyses.

Degrees of Freedom

The number of independent deviations used in calculating an estimate of the standard deviation.

Dissolved Solids

Disintegrated organic and inorganic material contained in water. Excessive amounts make water unfit to drink or use in industrial processes.

Double Blind Performance Evaluation

A sample that contains select parameters at defined levels. The levels are unknown to the laboratory. The laboratory is also unaware that the sample is a performance evaluation sample.

Dry Weight

The weight of a sample based on percent solids. Also, the weight of a sample after drying in an oven at a specified temperature.

Effluent

Treated or untreated wastewater that flows out of a treatment plant, sewer or industrial outfall. Generally refers to wastes that are discharged into surface waters and are regulated under the Clean Water Act. Effluent limitations are restrictions on quantities, rates and concentrations of wastewater discharges that are established by a state or EPA.

External Standards

A method of quantifying chromatographic data in which standards of known concentrations are analyzed prior to unknown samples. The chromatographic peak area (or height) of a sample component is compared to a calibration curve of a peak area constructed from the standard data for that component. This comparison allows the concentration of the component in the sample to be determined.

Extract

The solution (liquid) remaining after a sample has been contacted with an aqueous solution (for inorganics) or an organic solvent (for organics). The extract, containing the chemical of interest, is then processed and analyzed by AA, ICP, or wet chemical techniques (inorganics and metals) or by GC/MS, or HPLC (organics).

Extractables

Organic chemicals which generally contain six to thirty carbon atoms and are amenable to GC, GC/MS, or HPLC analysis. (Also called Semi-Volatile Organics).

Extraction

The process of isolating chemicals of interest from a sample matrix (e.g., water, soil) when the sample cannot be analyzed directly.

Error

The difference between an observed or measured value and its true value.

False Negative Result

A term used to describe a result that was incorrectly reported as “not detected”.

False Positive Result

A term used to describe a result that was incorrectly reported as present. False positives can be checked by analyzing blanks.

Field Blank

A blank that is prepared and handled in the field and analyzed in the same manner as its corresponding client samples.

Field Screening

An investigative technique utilizing analytical chemistry at or near a work site to rapidly determine the presence or absence of environmental contaminants and/or the approximate concentrations of a specific target of compounds.

Finding

An event discovered during an audit which, if continued, is sufficient to render the quality of an item unacceptable or indeterminate.

Flame Ionization Detector (FID)

A gas chromatography detector in which the column effluent gas is mixed with hydrogen and burned in air or oxygen. The ions and electrons produced in the flame generate an electric current proportional to the amount of material in the detector. The FID responds to nearly all organic compounds, but it does not respond to air and water, which makes it exceptionally suited to environmental analysis.

Flash Point

The lowest temperature at which a flammable liquid gives off sufficient vapor to form an ignitable mixture with air near its surface or within a vessel. Combustion does not continue. Used to characterize a waste as hazardous or non-hazardous in terms of flammability.

Full Scan

The process of monitoring all of the ions formed when a molecule is bombarded with electrons in the mass spectrometer.

Gas Chromatography (GC)

A technique for detecting organic compounds by using their physical and chemical properties to separate a mixture. The compounds are identified and quantified with various types of detectors

as they exit the chromatograph. Selection of detectors is dependent on the particular compounds of interest.

GC/ECD

A GC with a detector (Electron Capture) selective for halogenated organic chemicals (usually chlorinated pesticides and PCBs), used in Methods 608, 8081, 8082.

Gas Chromatography/Mass Spectrometry (GC/MS)

A technique in which sample analytes are bombarded with electrons as they exit a gas chromatographic column and are fragmented into characteristic ion patterns. The mass spectrometer is the detector. It can determine which fragments are present and therefore the identity of the compounds.

GC/N/P

A GC with a detector (N/P) selective for organic chemicals which contain nitrogen and phosphorus usually organophosphorous or triazine pesticides). Also referred to as GC/TSD (Thermionic Specific Detector).

GC/PID

A GC with a detector (Photo Ionization) selective for aromatic hydrocarbons.

Gravimetric

Analyses based on the direct or indirect weighing of the analyte in question. This technique usually requires the use of an analytical balance with a sensitivity of 0.1 mg or better.

Hazardous Waste

Waste regulated under RCRA that can pose a substantial or potential hazard to human health or the environment when improperly managed. Such wastes possess at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity) or appear on special hazardous waste lists. The term is not interchangeable with hazardous substance or material.

Headspace

Any area in a container not completely filled by the sample in which gases can collect.

High Resolution GC/MS (HR/GC/MS)

A GC/MS that uses both an electromagnet and permanent magnet to detect ions produced by the ion source. By using both magnets in series, very small differences in mass (0.003) can be detected. This type of instrument is most frequently used where extremely low (ppq) detection limits are important, such as analyses for dioxins and furans.

Holding Time

The storage time allowed between sample collection and sample analysis when the designated preservation and storage techniques are employed.

High Performance Liquid Chromatography (HPLC)

A chromatograph that is used to qualitatively and quantitatively identify organic chemicals, particularly those which are not amenable to GC techniques because of thermal instability.

Hydrocarbons

Chemical compounds that consist entirely of carbon and hydrogen.

Initial Calibration

Analysis of a series of analytical standards at different specified concentrations; used to define the linearity and dynamic range of the response of an instrument to the target compounds prior to the analysis of samples.

Instrument Detection Limit (IDL)

The smallest concentration or amount an instrument can reliably detect.

Instrument Tuning

A technique used in GC/MS procedures to verify that the instrument is properly calibrated to produce reliable mass spectral information.

Internal Standards (IS)

A compound added to every sample or sample extract at a known concentration prior to analysis for the purpose of quantitation.

Injection

Process of introducing a portion of a sample extract into a GC, GC/MS, or HPLC.

Isomers

Chemical compounds with the same molecular weight and atomic composition but differing molecular structure, e.g., n-pentane and 2-methylbutane.

Limit of Quantification (LOQ)

The minimal signal level required to quantitate a specific analyte by a specific procedure at the desired confidence level.

Library Search

A technique in which an unknown mass spectrum of a compound is compared to the mass spectra of compounds contained in a computer library in an effort to identify the compound. Compounds identified in this manner are referred to as tentatively identified compounds (TICs).

Linear Regression

A statistical method for finding a straight line that best fits a set of two or more data points, thus providing a relationship between two or more variables.

Listed Waste

Any waste listed as hazardous under the Resource Conservation and Recovery Act, but which has not been subjected to the Toxic Characteristics Listing Process because the dangers it presents are considered self-evident.

Log-In

The receipt and initial management of an environmental sample. It generally includes identifying who sent the sample; maintaining chain-of-custody; checking report and invoice information; recording analyses requested, including methodology and special instructions; and assigning a discreet in-lab identification, usually a number or bar code.

Mass Chromatogram

The plot of selected ions versus time. The areas under the curves are proportional to the amounts of each compound detected.

Mass Spectrum

A bar graph showing the relative abundance of the ions produced when sample molecules are bombarded by electrons in a mass spectrometer.

Material Safety Data Sheet (MSDS)

A compilation of information required under the OSHA Communication Standard on the identity of hazardous chemicals and their associated health and physical hazards, exposure limits and precautions.

Matrix

The component or substrate which contains the analyte(s) of interest. Examples of matrices are water, soil, sediment, and air. Matrix is not synonymous with phase (liquid or solid).

Matrix Effect

An interference in the measurement of analyte(s) in a sample that is caused by materials in the sample. Matrix effects may cause elevated reporting limits or may prevent the acquisition of acceptable results.

Matrix Modifiers

Chemicals added to samples for metals analysis, which are used to lessen the effects of chemical interferents, viscosity, and surface tension.

Matrix Spike (MS)

An aliquot of a matrix fortified sample spiked with known quantities of specific compounds and subjected to an entire analytical procedure. The percent recovery for the respective compound(s) is a measure of accuracy.

Matrix Spike Duplicate (MSD)

A second aliquot of the same matrix as the matrix spike (above) that is spiked in order to determine the precision of the method.

Maximum Contaminant Level (MCL)

The maximum permissible level of a contaminant in water delivered to any user of a public water system. MCLs are enforceable standards.

Mean

The average of a set of values.

Measurement

The process or operation of ascertaining the extent, degree, quantity, dimensions, or capability with respect to a standard.

Median

The middle value of a set of data when the data set is ranked in increasing or decreasing order.

Method Blank

An analytical control consisting of all reagents, which may include internal standards and surrogate standards, that is carried through the entire analytical procedure. The method blank is used to define the level of laboratory background contamination. Examples of method blanks are a volume of deionized or distilled laboratory water for water samples, a purified solid matrix for soil/sediment samples, or a generated zero air.

Method Detection Limit (MDL)

The minimum concentration of an analyte that, in a given matrix and with a specific method, can be identified, measured, and reported with 99% confidence that the analyte concentration is greater than zero.

Narrative

In an analytical report, a descriptive documentation of any problems encountered in processing the samples, along with corrective action taken and problem resolution.

National Pollutant Discharge Elimination System (NPDES)

A provision of the Clean Water Act that prohibits discharge of pollutants into waters within the U.S. unless a special permit is issued by EPA, a state (where delegated), or a tribal government on an Indian reservation.

Nutrient

Any substance assimilated by living a thing that promotes growth. The term is generally applied to nitrogen and phosphorus in wastewater, but is also applied to other essential and trace elements.

Organics

Chemicals which contain the element carbon. Pesticides, priority pollutants, etc., belong to this class, (See Inorganics).

Outlier

A result excluded from the statistical calculations due to being deemed “suspicious” when applying the “Grubbs Test” (or equivalent).

PAHs (PNAs)

Polyaromatic hydrocarbons, also called PNAs (polynuclear aromatics). A class of hydrocarbons that contain fused benzene rings. In the Air program, these compounds are frequently referred to as Polycyclic Organic Matter (POM).

PCBs

Polychlorinated biphenyls. A class of chlorinated organic mixtures primarily previously used as insulator fluid in transformers. The four most common mixtures are called Aroclors 1242, 1248, 1254, and 1260. These designations represent the number of carbon atoms (12) and percent weight chlorine (e.g., 42). Sale of PCBs for new uses was banned by law in 1979.

Percent Difference

When two independent measurements of the same characteristics are available, it is possible to use the percent difference instead of the coefficient of variation to measure precision.

Performance Evaluation (PE)

A type of audit in which a known or characterized value is compared to the result obtained through the routine analysis of a “PE” sample in the laboratory to evaluate the proficiency of an analyst or laboratory.

Performance Evaluation (PE) Sample

A sample of known composition (unknown to the laboratory), provided by an external source (e.g., EPA), which is used to evaluate lab performance.

Periodic Calibration

A calibration that is performed at prescribed intervals for equipment such a balances, thermometers, and balance weights. In general, they are performed on equipment that are distinct, singular purpose units, and are relatively stable in performance.

Percent Recovery

A measure of accuracy determined from the comparison of a reported spike value to its true spike concentration.

Pesticide

Any chemical used to control or eradicate a pest. Subclasses include insecticides (e.g., DDT for insects), herbicides, (e.g., atrazine for weeds), fungicides (e.g., captan for fungi), nematocides (e.g., DBCP for nematodes), etc.

Petroleum Hydrocarbon Fingerprinting

A technique for identifying sources of petroleum products.

pH

A scale of acidity/alkalinity running from 1.0 to 14. Low values (1-5) represent high acidity, middle values (5-8) neutrality and high values (9-14) high alkalinity.

Pollutant

Generally, any substance introduced into the environment that adversely affects the usefulness of a resource.

ppb

Part-per-billion. A unit of measurement that expresses the amount of chemical present ('part') per the amount of sample analyzed ('billion'). For example, a 'ng' (nanogram or one billionth of a gram) per 'g' (gram) of sample is 1 ppb. More common units are ug/Kg (micrograms per kilogram for solids) and ug/L (micrograms per liter for liquids).

ppm

Part-per-million. A unit of measurement which expresses the amount of chemical present ('part') per the amount of sample analyzed ('million'). For example, a 'ug' (microgram or one millionth of a gram) per 'g' (gram) of sample is 1 ppm. More common units are mg/Kg (milligrams per kilogram for solids) and mg/L (micrograms per liter for liquids).

Practical Quantitation Limit (PQL)

The lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Precision

The reproducibility of an analytical technique, usually measured by analysis of duplicates or duplicate spikes. Precision is usually expressed in terms of relative standard deviation or relative percent difference, but can be expressed in terms of the variance, range, or other statistic.

Preservative

A chemical or reagent added to a sample to prevent or slow decomposition or degradation of a target analyte or a physical process. Physical and chemical preservation may be used in tandem to prevent simple deterioration.

Priority Pollutants

A set of organic and inorganic chemicals identified by EPA as indicators of environmental contamination. A priority pollutant analysis is usually done on wastewater to obtain a discharge permit. See Part 122.

Proficiency Test

See Performance Evaluation.

Qualitative Analysis

An analysis that focuses primarily on the identification of chemicals present in a sample.

Quality Assurance (QA)

An organized program designed to assure that laboratory quality control procedures are appropriate and demonstrate data quality. All those planned and systematic actions necessary to provide adequate confidence in results.

Quality Assurance Program Plan (QAPP)

A written assembly of management policies, objectives, principles, and general procedures that outlines how the laboratory intends to generate data of known and acceptable quality.

Quality Assurance Project Plan (QAPJP)

A written document that presents in specific terms the policies, organization, objectives, functional activities and specific quality assurance/quality control (QA/QC) activities designed to achieve the data quality objectives of a specific project. There are 16 essential elements that EPA has mandated be addressed in a project plan.

Quality Control (QC)

The physical procedures within the laboratory used to assess the quality of data (e.g., spikes, blanks, duplicates, calibration, etc).

Quantitative Analysis

An analysis that focuses primarily on the measurement of the amount of specific analyte(s) present in a sample.

Raw Data

All documentation associated with the original recording of analytical results pertinent to a specific sample or set of samples. This may include laboratory worksheets, calculation forms, instrument-generated output, analyst notes, etc., from sample receipt through final reporting.

Reconstructed Ion Chromatogram (RIC)

The response of the total ions detected versus time. A term applicable only to GC/MS.

Reference Method

Statistic for evaluating the precision of a replicate set.

Reference Standard

A chemical of known purity used as a reference ('standard') for the calculation of an analytical result.

Relative Percent Difference (RPD)

Statistic for evaluating the precision of a replicate set.

Relative Response Factor (RRF)

A measure of the relative response of a compound compared to its internal standard. RRFs are determined by analysis of standards and are used in the calculation of concentrations of analytes in samples.

Relative Standard Deviation

See Coefficient of Variation.

Resolution

The degree of separation between peaks eluting from a chromatographic column. Sufficient resolution between peaks is required for proper quantitation of unknown analytes.

Resource Conservation and Recovery Act (RCRA)

A federal law that established a regulatory system to track hazardous substances from the time of generation to disposal. The law requires safe and secure procedures to be used in treating, transporting, storing, and disposing, of hazardous substances. RCRA is designed to prevent new and uncontrolled hazardous waste sites.

Response Factor (RF)

A factor derived from the calibration of a compound that is used in the quantitation calculation of sample analytes. A response factor may be derived from an external standard calibration (then called a Calibration Factor) or from an internal standard calibration (then called a Relative Response Factor).

Retention Time

A term used in gas and liquid chromatography describing the time elapsed from sample injection until the specific compound elutes or exits the chromatographic column at the detector. Each compound has a characteristic retention time on a specific column; therefore, this information is used to qualitatively identify the compounds in the sample.

Relative Retention Time (RRT)

Used to code GC peaks by calculating the ratio between the RT of a GC peak and the RT of a reference peak.

Selected Ion Monitoring (SIM)

A technique in which one or more specific ions are monitored. Because only specific ions are monitored, selected ion monitoring generally provides higher sensitivity than a full scan monitoring. A term applicable only to GC/MS.

Semi-Volatile Organics

Organic chemicals which generally contain six to thirty carbon atoms and are amenable to GC, GC/MS or HPLC analysis. (See Extractables).

Solid Waste

Nonliquid, nonsoluble materials, ranging from municipal garbage to industrial wastes, that contain complex, and sometimes hazardous, substances. Solid wastes include sewage, sludge, agricultural refuse, demolition wastes, mining residues, and even liquids, and gases in containers.

Solvent

A substance, usually liquid, capable of dissolving or dispersing one or more other substances.

Standard Operating Procedure (SOP)

A detailed written description of how a laboratory executes a particular procedure or method, intended to standardize its performance.

Standard Reference Material (SRM)

A material of which certain properties have been certified by the National Institute of Standards and Technology (NIST).

Stock Solution

A concentrated solution of analyte(s) or reagent(s) prepared and verified by prescribed procedure(s), and used for preparing working standards or standard solutions.

Subsample

A portion taken from a sample. A laboratory sample may be a subsample of a gross sample; similarly, test portion may be a subsample of a laboratory sample.

Superfund

The Response Trust Fund, established by CERCLA as a mechanism for the federal government to take emergency or remedial action to clean up both abandoned and existing disposal sites when there is a release, or potential threat of a release, of a hazardous substance presenting imminent and substantial danger to public health and welfare. See CERCLA.

Surrogate

Compounds that are added to every blank, sample, LCS, matrix spike, matrix spike duplicate, and standard for most organic analyses. They are used to evaluate analytical efficiency by measuring recovery. Surrogates include brominated, fluorinated, or isotopically labeled compounds that are not expected to be detected in environmental samples.

Systems Audit

A systematic on-site qualitative review of facilities, equipment, training, procedures, record keeping, data verification, and reporting aspects of a quality assurance system to arrive at a measure of the capability of the system.

Target Compound List (TCL)

A list of organic compounds that are determined during Superfund site remediations. Created by EPA for use in the Contract Laboratory Program, this list was formerly referred to as the Hazardous Substance List (HSL).

Target Compounds

Specific compounds that are to be quantified in a sample, based on a standard list of potential compounds.

Tentatively Identified Compounds (TICs)

Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds or surrogates. TICs usually consist of up to 30 peaks that are greater than 10% of the peak areas, or heights, of the nearest internal standard. They are subjected to mass spectral library searches for tentative identification.

Traceability

The ability of an analytical standard material used for instrument calibration purposes to be traced to its source. The standards must be traceable via written documentation to sources which produce or sell verified or certified standards, i.e., National Institute for Standards and Technology, USEPA, or vendors preparing standards from those sources which they have certified.

Trip Blank

A sample, usually pure water prepared in the lab, which is taken to the sampling site and then returned with the collected samples. Later analysis will indicate any false positive results in the real samples arising from contamination during shipment.

Validation

A systematic effort to review data for identification of errors, and thereby deleting or flagging suspect values to assure the validity of the data for the user. This process may be done by manual or computer methods.

Verification

The process of reviewing data to ensure that data reduction has been correctly performed and that analytical results to be reported correspond to the data acquired and processed.

Volatile Organics

Organic chemicals which generally contain one to six atoms and are amenable to analysis by the purge/trap technique because of their high vapor pressures. (See Semi-Volatile Organics).

7.0 Interferences and Pretreatments

- 7.1 Contaminants in solvents, reagents, glassware, and other sample processing hardware may cause interferences that lead to discrete artifacts and/or elevated baselines in the ion current profiles. Demonstrate that all of these materials are free from interferences under the conditions of the preparation and analysis by extracting and analyzing a laboratory method blank with each batch of up to 20 samples.
- 7.2 Contaminants coextracted from the sample may cause matrix interferences. The extent of matrix interferences will vary considerably from sample to sample, depending upon the nature of the environment being investigated. An interference which is unique to SIM techniques can arise from the presence of a coeluting compound which contains the quantification mass ion. This event results in a positive interference to the reported value for the compound of interest. This interference is controlled to some degree by acquiring data for a confirmation ion. If the ion ratios between the quantification ion and the confirmation ion are not within the specified limits, then interferences may be present. Quantification and confirmation ions should agree within +/- 20% of the calibration standard ion ratios. However, the stability of confirmatory/primary ion abundance ratios may decrease as the IDL is approached. Analysts must apply judgment in evaluating apparent interferences.
- 7.3 The presence of a large amount of a single alkyl homolog group without the presence of the other related groups may be indicative of an interference. For example, the presence of an apparent C₂ - Naphthalenes in the absence of C₁ - Naphthalenes or C₃ - Naphthalenes may be an analytical interference. The analyst should use the spectrum ions and pattern recognition when determining whether to select a homolog group.

8.0 Health and Safety

- 8.1 All relevant Material Safety Data Sheets (MSDSs) are kept alphabetically in the centrally located file storage. Alternatively, go to <http://alphanet.alphalab.com/alphaweb/> where MSDSs and Health and Safety information can be found.
- 8.2 All company safety practices shall be followed as written in the Alpha Analytical *Chemical Hygiene Plan*. (See intranet address above.)

9.0 Equipment and Supplies

If performing any maintenance on any piece of equipment, other than routine daily maintenance, it must be documented in the *Instrument Maintenance Logbook* located in the laboratory specific to each instrument. Specific instrumentation service contracts or warranties differ from each instrument. See the Section Supervisor for specific instrument details.

- 9.1 Gas Chromatograph - Model Agilent/HP6890 or equivalent. The instrumentation includes a temperature-programmable gas chromatograph and all required accessories including syringes, analytical columns, and gases. The injection port is designed for split or splitless injection onto a capillary column. The injection port includes a Phenomenex drilled uniliner with a hole on the top and contains a small plug of silanized glass wool. The injector port will require maintenance on an as needed basis if degradation or contamination is apparent. Please refer to the front of the *Instrument Maintenance Logbook*, which outlines the routine maintenance procedures.
- 9.2 Large volume injector, ATAS OPTIC 2 or APEX ProSep 800 Plus XT, or equivalent - Capable of injecting one to fifty microliters of standards and extracts onto the GC column. *This equipment is optional, and is only employed if client or project specifications request. Standard Agilent/HP 7683 microliter autosamplers are typically employed. See Section 9.5.*
- 9.3 Column – Restek or Phenomenex 60-m x 0.25 mm ID, 0.25 um film thickness, fused-silica capillary column with RTX-5 or ZB-5 bonded phase, or equivalent.
- 9.4 Mass Spectrometer – Agilent/HP5973, or equivalent. The mass spectrometer must operate at 70ev (nominal) electron energy in the electron impact ionization mode and be tuned to optimize the sensitivity of the instrument to the mass range being monitored (30 - 550 amu). The GC capillary column is fed directly into the ion source of the mass spectrometer. The source will require cleaning and/or filament replacement on an as needed basis. Please refer to the instrument hardware manual for detailed procedures, located in the laboratory next to the instrument.
- 9.5 Auto sampler – Agilent/HP 7683 series autosampler and tray, or equivalent.
- 9.6 Computer - with Windows NT version 4.0 operating software utilizing Agilent/HP Enviroquant G1701BA Version B.01.00 software, or equivalent/higher versions.
- 9.7 Helium - Ultra high purity grade (99.9999% pure).

10.0 Reagents and Standards

- 10.1 *Methylene Chloride*, ACS approved, Pesticide grade, see Alpha Analytical SOP Reagent, Solvent and Standard Control (G-008) for additional details regarding solvent purity.
- 10.2 *Hexane*, ACS approved, Pesticide grade, see Alpha Analytical SOP Reagent, Solvent and Standard Control (G-008) for additional details regarding solvent purity.
- 10.3 *Acetone*, ACS approved, Pesticide grade, see Alpha Analytical SOP Reagent, Solvent and Standard Control (G-008) for additional details regarding solvent purity.
- 10.4 *Methanol*, Purge and Trap grade, see Alpha Analytical SOP Reagent, Solvent and Standard Control (G-008) for additional details regarding solvent purity.

- 10.5 *Custom Mix Calibration Standard* prepared by Supelco which contains the parent PAH and Heterocyclic compounds at 1000ug/mL.
- 10.6 *5B(H)-Cholane* (CAS# 80373-86-0) and *17A(H), 21B(H)-Hopane* (CAS# 13849-96-2) obtained from Chiron AS Norway at 1000ug/mL. (These compounds are used for calibration and quantitation of all steranes, triterpanes and triaromatic steroids, and 5B(H)-Cholane is also used as a surrogate compound.)
- 10.7 *Surrogates*: 2-Methylnaphthalene-d10, Pyrene-d10, and Benzo(b)fluoranthene-d12 from Cambridge Isotope, neat. Prepare a stock surrogate solution for each by weighing 0.02g of neat surrogate into 10mL of *Methylene Chloride* for a concentration of 2000ug/mL. Take 500uL of each stock solution into 100mL for a low level spiking solution at 10ug/mL. Take 1250uL of each stock solution into 25mL for a high level spiking solution at 100ug/mL. These solutions must be assayed for use by analysis before release to the preparation lab. All compounds must be within 20% of their true value. 100uL of low solution or 200uL of high solution is spiked into each QC and field sample. This amount may be adjusted to meet project specific concentrations, as needed.
- 10.7.1 *Biomarker surrogate*: 5B(H)-Cholane from Chiron AS Norway solution at 1000ug/mL in iso-octane. Take 1,000uL of stock solution into 100mL for a low level spiking solution at 10ug/mL. Take 1000uL of stock solution into 10mL for a high level spiking solution at 100ug/mL. These solutions must be assayed for use by analysis before release to the preparation lab. All compounds must be within 20% of their true value. 200uL of low solution or high solution is spiked into each QC and field sample. This amount may be adjusted to meet project specific concentrations, as needed.
- 10.8 *Internal Standards (IS)*: Acenaphthene-d10 and Chrysene-d12 from Cambridge Isotope, neat. Prepare two solutions by weighing 0.02g of neat internal standard into 10mL of *Methylene Chloride* for two 2000ug/mL stock solutions. Prepare a 500ug/mL intermediate solution by spiking 6250uL into 25mL *Methylene Chloride*. Then prepare a working solution by adding 2000uL to 200mL for a 5ug/mL solution. 100uL is spiked into each 1mL of QC sample or field sample, for a concentration of 500ng/uL on column.
- 10.9 *Laboratory Control Sample, Matrix Spike, and Matrix Spike Duplicate (LCS/MS/MSD)*: A solution of 17 priority pollutant parent PAH's from Restek, or equivalent, at 1000ug/mL. This solution is from a separate source than the calibration solutions. Prepare the spike mix by adding 250uL of the solution to 25mL of *Methylene Chloride* for a 10ug/mL LCS/MS/MSD spiking solution. The solution must be assayed for use by analysis before release to the preparation lab. All compounds must be within 20% of their true value. 100uL is spiked into the LCS and each designated MS/MSD field sample. This amount may be adjusted to meet project specific concentrations, as needed.
- 10.10 *Alaska North Slope Crude Oil*: Weigh approximately 0.5g neat oil, add 1.0mL each high surrogates and high biomarker surrogate, and 10mL internal standard mix into 100mL of

Methylene Chloride for a working solution of approximately 5mg/mL(with surrogates at 1.0ug/mL and internals at 0.5ug/mL).

- 10.11 *Independent Calibration Check*: Prepared as below in Section 10.13 at 0.5ug/mL, but from a different source, lot, or vendor. Independent Check analyses must agree within 20% of their true value.
- 10.12 *SRM 1944 – PAH's in sediment and SRM 1974a – PAH's in Tissue*, from the National Institute of Standards & Technology (NIST). Please refer to the individual certifications for the assigned true values. These SRMs may be extracted and analyzed with sample batches as part of the overall QC evaluation if requested by the client. Other certified SRMs may be used on a project specific basis.
- 10.13 Prepare the *Working Stock Standard* (all resulting concentrations at 20µg/mL) in 25mL of Methylene Chloride (CH₃Cl₂) as follows. (**Note:** The following is just one way an analyst may make up calibration standards. Limitations may exist that would cause the method to be adjusted. Problems with standard availability, solubility, or expiration may affect how the following 6 level calibration standards are prepared.)

<u>Component</u>	<u>Volume Added</u>	<u>Final Volume in (CH₃Cl₂)</u>
Custom Supelco Mix	500 µL of 1000 µg/mL	25 mL
5B(H)-Cholane	500 µL of 1000 µg/mL	25 mL
17A(H), 21B(H)-Hopane	500 µL of 1000 µg/mL	25 mL
2-Methylnaphthalene-d10	250 µL of 2000 µg/mL	25 mL
Pyrene-d10	250 µL of 2000 µg/mL	25 mL
Benzo(b)Fluoranthene-d12	250 µL of 2000 µg/mL	25 mL

6 Level Curve Preparation for Individual Components

<u>Calibration Level</u>	<u>Volume of Working Std. Added (20 ug/mL)</u>	<u>Volume of IS Stock added</u>	<u>Final Volume in (CH₃Cl₂)</u>
Level 1 - 10 ng/mL	50 µL	10 mL	100 mL
Level 2 - 25 ng/mL	125 µL	10 mL	100 mL
Level 3 - 100 ng/mL	500 µL	10 mL	100 mL
Level 4 – 500 ng/mL	2500 µL	10 mL	100 mL
Level 5 - 5,000 ng/mL	25 mL	10 mL	100 mL
Level 6 - 10,000 ng/mL	12.5 mL	2.5 mL	25 mL

Note: A minimum of a 5-level curve must be analyzed, but up to 7 levels may be analyzed and evaluated.

11.0 Sample Collection, Preservation, Shipment and Storage

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- 11.1 Sample collection is not applicable to the Alpha Analytical laboratory operation.
- 11.2 Please see the *Sample Management* SOP (G-005) that describes the responsibilities of sample custody including all proper documentation, verification, and tracking procedures following Chain of Custody (COC) protocols, sample receipt procedures using the *Sample Receipt Checklist*, which includes the check for proper sample preservation and cooler temperature verification. SOP G-005 also describes how samples are normally shipped or obtained by the laboratory, precautions to be used in opening sample shipments, and sample storage conditions.
- 11.3 Internal COC procedures for sample tracking include the use of sample tracking logbooks. These procedures are also described in the *Sample Management* SOP (G-005).
- 11.4 *Aqueous* samples should be collected in 1L or 2L amber glass bottles and stored without preservative at 4°C. *Soil/sediment and tissue* samples should be collected in glass soil jars and stored at 4°C, or if desired, frozen. The minimum amount of sample needed to reach the reporting limits in Section 23.0 for this method for aqueous samples is 1L, for solid and tissue matrices is 10-20 grams and for petroleum product samples is 0.1 grams. Additional sample is needed (approximately 3X the minimum amount) if MS/MSD analyses are to be performed.
- 11.5 The hold time for this method is 7 days for the extraction of aqueous samples and 14 days for the extraction of soil/sediment and tissue samples. There is no extraction holding time applied to petroleum product samples. If sediment or tissue samples are frozen, this suspends the holding time until removal from the freezer. All extracts must be analyzed within 40 days of the extraction date.

12.0 Quality Control

Quality Control (QC) samples are necessary to monitor both the sample extraction and instrument analysis procedures. The Quality Control samples described below are considered the method defaults, and are the minimum requirements, except where noted. Client and Project specific Data Quality Objectives (DQOs) supersede the requirements in this section where applicable. Client or Project specified DQOs shall be included, or referenced, in the final report to the client.

12.1 Method Blank

- 12.1.1 A method blank must be extracted (spiked with surrogates and internal standards) and analyzed once per every 20 samples or per extraction batch, whichever is more frequent.
- 12.1.2 Method Blanks should not contain any individual compound at or above the concentration of the reporting limit. If a blank does contain target compounds

greater than the reporting limit, they should be less than 10% of any sample results for the same compound(s). If the blank does not meet the above criteria, all efforts must be made to identify and eliminate any source of contamination, and all samples associated with the contaminated blank should be re-extracted and reanalyzed.

12.2 Laboratory Control Sample (LCS)

12.2.1 The laboratory control sample (LCS) contains 17 priority pollutant parent PAH's and is from a second/separate source, to verify the accuracy of the calibration curve. The LCS is extracted along with the samples. An LCS must be extracted and analyzed once per every 20 samples or per extraction batch, whichever is more frequent.

12.2.2 The acceptable recovery QC limits are found in Section 18 for aqueous, solid, tissue, and product LCSs. All recovery limits are continuously monitored and documented in-house through control charts which are updated semi-annually. The Alpha Analytical SOP *Control Chart Generation* (G-013) provides details explaining how control charts are generated and used for quality control.

12.2.3 If the LCS does not meet the QC limits, check to see if an analytical or spiking error has occurred. If the LCS recovery is still out of control, re-extraction of the entire extraction set may be necessary. If the samples are also associated with a matrix spike and matrix spike duplicate that are in control, re-extraction may not be necessary, as this demonstrates an isolated problem pertaining to the LCS only.

12.3 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

12.3.1 Matrix spike and matrix spike duplicate analyses must be performed once per 20 samples per matrix (5% frequency).

12.3.2 The acceptable recovery and RPD QC limits are found in Section 18 for aqueous, solid, tissue, and product MS/MSD's. All recovery limits are continuously monitored and documented in-house through control charts which are updated semi-annually. The Alpha Analytical SOP *Control Chart Generation* (G-013) provides details explaining how control charts are generated and used for quality control.

12.3.3 If the MS/MSD do not meet the QC limits, check to see if an analytical or spiking error has occurred. If the recovery or RPD still exceeds the control limits, re-extraction of the set may be necessary. If the associated LCS is within control, include a project narrative with the results to client noting that there may be matrix effects on the accuracy and/or precision of the affected results as evidenced by the matrix spike and matrix spike duplicate exceedence.

12.4 Matrix or Sample Duplicates

12.4.1 Laboratory matrix or sample duplicates are analyzed if requested by the client. The QC limit is 30% RPD for target compounds found above 5 times the reporting limit.

12.4.2 If the %RPD exceeds the 30% control limit and the associated MS/MSD %RPD is within 30%, include a project narrative with the results to client noting that there may be potential matrix effects on the precision of the results isolated to this sample, as evidenced by the matrix duplicate exceedence and the MS/MSD acceptance. If both the sample/duplicate and the MS/MSD exceed the control limits, notify the Section Supervisor and/or the Laboratory Director, to decide if re-extraction of the set is necessary.

12.5 Surrogates

12.5.1 Surrogate recovery limits for all matrices can be found in Section 18. The recovery limits are continuously monitored and documented in-house through control charts which are updated semi-annually. The Alpha Analytical SOP *Control Chart Generation* (G-013) provides details explaining how control charts are generated and used for quality control.

12.5.2 If the surrogate does not fall within the QC limits, check to see if an analytical or dilution error occurred and re-calculate. If only one surrogate falls below the 50% recovery limit, but is above 10% recovery, the exceedence is noted, with approval of the Section Supervisor, and the results are reported to the client with a notation in the case narrative. If all surrogates are recovered below the 50% limit, re-extract the sample and report the re-extract results along with the original results, if re-extraction occurred beyond the holding time, and the re-extract surrogates are within the QC limits. If the surrogates are recovered below 50% in the re-extract, this confirms a suspected matrix interference on the surrogates, and only the original analysis needs to be reported. If the chromatogram shows obvious matrix interference, no re-analysis or re-extraction is necessary. *This decision must be made with approval of the Section Supervisor.* Surrogate outliers and sample re-extracts must be noted in the case narrative to the client.

12.6 Internal Standards

12.6.1 Internal standards are added to every field sample, QC sample, and method blank. The acceptance limits are 50-200% of the internal standard response (or area) of the daily continuing calibration verification standard.

12.6.2 If the internal standard areas fall outside the QC limits, check to see if an analytical, dilution or spiking error occurred.

- If internal standards are low, reanalyze the extract.

- If internal standards are high, the extract may have concentrated while on the instrument, then:
 - √ If no obvious interference is present, re-analyze the extract. If internal standards are now within the acceptance limits, report only the re-analysis, as long as the re-analysis occurred within the 40-day analytical hold time. If the re-analysis occurred outside of the 40-day analytical hold time, both the original and re-analysis must be reported. If the internal standards again are outside the acceptance limits, and either within or outside of the 40-day hold time, try re-analyzing at a 1:5 or greater dilution (see below).
 - √ If the chromatogram shows obvious matrix interference that cannot be avoided when integrating, a re-analysis at a 1:5 or greater dilution may be helpful in minimizing the interference while ensuring better quantitation.
- Note any exceedence in the case narrative to the client.

12.7 Standard Reference Materials (SRM's)

- 12.7.1 Standard reference materials (SRM) are available from the National Institute of Standards and Technology (NIST) and are extracted and analyzed with samples on a project specific basis. These are not used as controls, but to evaluate potential matrix effects in associated samples for the target compounds being evaluated.
- 12.7.2 Acceptance criteria for SRM analysis will vary from project to project depending upon client data quality objectives (DQOs). Generally, $\pm 35\%$ difference (%D) based on the true certified values of the target compounds of interest, or 65% - 135% recovery, serve as advisory acceptance criteria.
- 12.7.3 Corrective Action: Repeat analysis and/or check to see if an analytical error has occurred. If the % recovery or %D still exceeds the control limits and the associated LCS and/or MS/MSD are within control, include a project narrative with the results to client noting that the observed recovered of the SRM are isolated to this sample as evidenced by the LCS and/or MS/MSD acceptance.

13.0 Calibration and Standardization

Prior to the analysis of any standards or samples, the instrument acquisition and process methods must be set up. This includes the GC run parameters and the SIM mode acquisition ion entries into the different SIM acquisition retention time windows. The mass spectrometer must be tuned to the meet the abundance criteria for PFTBA (then DFTPP if required per client request or project specific DQOs) and an initial calibration must be analyzed to establish linearity of the instrument.

13.1 PFTBA Manual Tuning

13.1.1 Prior to initial calibration, tune the mass spectrometer using PFTBA (Perfluorotributylamine - calibration gas) to maximize the sensitivity of the instrument in the mass range of interest, 35-525 amu.

13.1.2 The following PFTBA mass intensity criteria must be met:

PFTBA Ion	Relative Abundance
m/e 69	Base Peak with > 100,000 counts
m/e 219	30% to 60% of Base Peak
m/e 502	5% to 11% of Base Peak

13.2 DFTPP Tuning - **Only** performed on a project specific basis, if requested by the client, or included in a project specific Quality Assurance Plan (QAP) or Work Plan.

13.2.1 Before the analytical standards are analyzed, the mass spectrometer must be evaluated for the proper ion criteria for DFTPP (decafluorotriphenylphosphene), if specifically requested by the client or included in a project specific QAP. Generally, 1uL of a 50 ng/mL solution is evaluated. A larger volume or lesser concentration may be evaluated if using large volume injections.

13.2.2 The following DFTPP mass intensity criteria must be used:

DFTPP KEY MASSES AND ABUNDANCE CRITERIA

Mass	m/e Abundance criteria
51	30-60 percent of mass 198.
68	Less than 2 percent of mass 69.
70	Less than 2 percent of mass 69.
127	40-60 percent of mass 198.
197	Less than 1 percent of mass 198.
198	Base peak, 100 percent relative abundance.
199	5-9 percent of mass 198.
275	10-30 percent of mass 198.
365	Greater than 1 percent of mass 198.
441	Present but less than mass 443.
442	Greater than 40 percent of mass 198.
443	17-23 percent of mass 442.

Tune acceptance must be verified at the beginning of every analytical shift, and prior to the analysis of any standards. If the DFTPP tune does not meet the criteria above, the PFTBA must be re-evaluated, and adjustments made by an experienced

mass spectrometrists, to obtain an acceptable DFTPP tune, before continuing with any analysis.

13.3 GC Instrumental Conditions

13.3.1 Inject an aliquot of 1uL into the capillary column of the gas chromatograph at the following conditions. Larger injection volumes (to 50uL using the Large Volume Injector, LVI) will be dictated by project specific DQOs.

GC Parameter	Setting
Injector Temp:	280 °C
Transfer Line Temp:	300 °C
Initial Oven Temp:	40 °C
Initial Hold Time:	1 minute
Ramp Rate:	6 °C / minute
Final Temperature:	315 °C
Final Hold Time:	30 minutes
Total runtime:	76 minutes
Mode:	Splitless / Constant Flow 1.0ml/min
Purge:	20 mL / minute – on at 0.80 minutes
MS Temperature	300 °C

13.4 Mass Spectrometer Conditions

13.4.1 The effluent from the GC capillary column is fed directly into the ion source of the mass spectrometer. The MS is operated in the SIM mode using appropriate retention time windows to include the quantification and confirmation ions for each PAH and Biomarker compounds as shown in Table II. For each retention time window the ions 191, 217, and 218 are included for sterane and triterpane quantification, if requested by the client.

13.5 ProSep Injection Port Parameters for Large Volume Injections (LVI)

ProSep Parameter*	Setting*
Injector Temp:	60 - 300 °C
Initial Hold Time:	30 sec. - 3 minutes
Flow Rate:	0.5 - 5.0 mL / minute
Purge:	0.5- 5.0 mL / minute, ON at desired time
Injection Volume:	1uL - 50uL

* = The settings listed may vary from project to project, based on client specific DQOs. *Injection temperature, hold time, flow rate, purge time and injection volume can effect chromatographic resolution and detection limits.* All parameters listed above can be set within the above setting ranges. Only a trained and experienced mass spectrometrists has the authority to change any setting. All standards and samples must be acquired using the

same set of parameters. If any parameters are changed, a new initial calibration must be analyzed and accepted before any samples can be analyzed.

13.6 Data Acquisition Parameters

13.6.1 SIM Windows must be set up that bracket the expected retention times for each target analyte. These windows include the quantitation (primary) and confirmation ions for each parent PAH and Alkyl homolog group. To establish the expected retention time window ranges, the mid-level calibration standard must be analyzed in full scan mode. The resulting full scan analysis will dictate the windows in which the selected ions will be monitored. The table below lists example and suggested windows and the ions that can be monitored within each window. *All possible ions and windows are not noted here.* Project or client specifications may dictate changes in ion selection and the number of windows. Depending upon the length of the analytical GC column, the time each window is selectively monitored may vary. The retention time windows must be shifted accordingly, when instrument maintenance is performed, (*i.e.*, the column is clipped).

Window Number	Selected Ions Monitored
# 1	64,83,85,113,120,123,128,134,136,138,142,148,152,154,156,162,166,170,176,180,190,194,207
# 2	64,83,85,113,123,139,141,153,154,155,156,162,164,168,169,170,176,179,183,184,190,193,207
# 3	64,83,85,113,123,152,155,165,166,169,170,174,176,178,179,180,183,184,188,190,194,195,198
# 4	64,83,85,113,139,167,177,191,192,194,195,198,206,207,208,212,217,218,226,231,241,253,256
# 5	64,83,85,101,177,191,197,202,206,207,211,212,215,216,217,218,219,220,226,231,234,240,253
# 6	64,83,85,113,114,177,189,191,205,215,216,217,218,219,220,229,230,231,234,240,244,253,258
# 7	83,85,177,191,215,217,218,226,228,229,230,231,234,240,241,242,244,248,253,256,258,262,270
# 8	83,85,113,177,191,217,218,231,241,242,252,253,255,256,258,260,262,264,270,276,284,290,370
# 9	64,83,85,113,114,163,177,191,217,218,231,252,253,255,260,262,264,269,270,276,284,290,370
#10	83,85,113,138,139,177,191,217,218,231,253,276,277,278,279,292,293,300,301,302,303,312,313

13.6.2 The “dwell” time for each window should be set to 18, and the resolution should be set to “high”.

13.7 Initial Calibration

13.7.1 Before analysis of sample extracts, establish a multi-point response factor calibration curve showing the linear range of the analysis for all target analytes in Table IA and IB. Use standard concentrations of 10, 25, 100, 500, 5000 and 10,000 ng/mL to construct the curve. See Section 10.13 for the preparation of the standard solutions for the initial calibration curve.

13.7.2 Run a sequence with the initial calibration standards and the retention time standard.

- Create a processing method from a previous method on that instrument. Set retention time windows using a mid level standard and the retention time standard.
- Quantify and QEDIT the initial calibration standards. Update the response factors for each level of the method with these standards. Use each parent compound response for any associated homolog group. Alkylated phenanthrenes and anthracenes, and alkylated fluoranthenes and pyrenes are quantified together as total alkylated phenanthrene/anthracenes (using the phenanthrene parent response factor) and total alkylated fluoranthenes/pyrenes (using the pyrene parent response factor).
- Acceptance Criteria: 25% RSD for 90% of all target compounds, with the exception for 10% to be between 25%RSD and 35%RSD. All calibration standards must be analyzed within 24 hours.

13.7.4 Initial Calibration Check (ICC)

- The analysis of an ICC standard must follow the initial calibration curve.
- After final processing, calculate the percent recovery of each PAH by using the following calculation:

$$\% \text{ Recovery} = \text{Found Amount} / \text{True Value} \times 100$$

- Acceptance Criteria: All recoveries must be +/- 20% of the true values.

13.7.5 If the initial calibration fails, perform instrument maintenance and repeat.

13.7.6 Alaska North Slope Crude Reference Oil (ANS)

- The ANS crude oil reference standard is analyzed following each initial calibration curve. Analysis of this reference oil is to establish the integration patterns of the Alkyl PAH homolog groups, and to establish the current instrument quantitation and confirmation ion ratios. Analysis of this standard

following the initial calibration ensures the retention time windows in the SIM mode of acquisition have been set up properly.

- The analysis of the ANS standard is for reference. If instrument maintenance is performed, such as removing a significant section of the analytical column consisting of one “loop” or more, the ANS must be analyzed to update and/or confirm the SIM acquisition windows.
- The ANS reference standard is processed against the completed initial calibration curve method. See Section 15.2 for information regarding manual integration of the Alkyl PAH homolog clusters. This standard will be used for reference when processing field samples for this method, until such a time that a new ANS standard needs to be analyzed. Other project/client specific source oils may be used. These specific oils will likely display patterns that differ from ANS, but will aid analysts in pattern identification of the related field samples.

13.7.8 ICALs are documented on the *Initial Calibration Checklist*. An example of the checklist can be found in Section 23.0. The initial calibration must be secondarily reviewed before analyzing samples.

14.0 Procedure

14.1 Daily PFTBA Tuning is not required. See Section 13.1 for details.

14.2 Evaluate the DFTPP tune as described in Section 13.2, if required.

14.3 Continuing Calibration Verification

A continuing calibration verification (CCV) standard, at the concentration of a mid-level initial calibration standard, must be analyzed at the beginning and end of every analytical sequence, and every 24 hours within the sequence, to confirm instrument stability, via response factor, for each calibrated PAH.

14.3.1 Quantitate and QEDIT the continuing calibration standard. **Note:** The Alkyl homolog groups may be deleted from the report. Only the parent PAH compounds are monitored for %D and the following acceptance criteria.

14.3.2 Acceptance Criteria: Compare the CCV resulting response against the average response for the initial calibration for each calibrated PAH. The %D for each calibrated PAH must be below 25%, with no more than 10% of all compounds greater than 25% but less than 35%. If multiple CCVs are analyzed within an analytical sequence, each CCV must be analyzed within 24 hours of the previous CCV and each CCV, including the ending CCV must meet the acceptance criteria.

14.3.3 All CCVs are documented on the *Continuing Calibration Checklist*. An example of the checklist can be found in Section 23.0.

14.3.4 If the CCV does not meet 25%D and 10% of the analytes are <35%, for each calibrated PAH, the following *corrective actions* are recommended:

- Perform instrument maintenance and repeat the continuing calibration, and re-analyze all affected samples, OR,
- Qualify all results reported for the failing CCV with an appropriate qualifier, including all alkylated compounds quantified using the suspect response, and any non-detects. If the failure of the suspect response appears related to a loss in MS sensitivity, instrument maintenance and repeat analysis of the continuing calibration, and all affected samples, must be performed.

The choice of corrective action must be made in consultation with the Section Supervisor, QA Manager, Project Manager and/or the client. The reasoning for choosing the second option must be documented in the project narrative to the client.

14.4 Daily Analytical Sequence

14.4.1 Samples are prioritized for analysis by the Organic Section Supervisor or GC/MS Group Leader based on client due date and sample analytical hold time. Samples are retrieved from the sample storage refrigerator.

14.4.2 The sequence is prepared and run using the Enviroquant software. Printouts of all sequences are kept in a three-ring notebook next to each instrument. The sequence printouts are used to document run sequences; notations are manually added of any reruns or dilutions that will need to be performed.

14.4.3 If the on-column concentration of any PAH compound exceeds the calibration range of 10,000 ng/mL, the sample must be diluted and re-analyzed.

15.0 Data Evaluation, Data Reporting and Calculations

15.1 Identification of the priority pollutant PAH compounds is based on gas chromatographic relative retention times (RRTs) from the analysis of a mid-level initial calibration standard. For these compounds, manual quantitations may be performed, if necessary, by integrating the area of the quantitation ion or peak. For *alkylated* PAHs, the homolog groupings (*i.e.*, C₃- Naphthalenes) appear in the extracted ion current profiles (EICPs) as a cluster of isomers. Integrate peaks within the cluster by straight-line integration to the baseline, taking into account background noise in the EICPs. Reference the Alaska North Slope Crude Oil pattern book, for a cluster by cluster example of each integration for each alkylated PAH homolog group. Table II, in Section 23.0, lists the representative ion(s) used for quantitation and confirmation of each parent PAH and alkylated PAH homolog group.

Note: Manual integration is not to be used solely to meet QC criteria, nor is it to be used as a substitute for corrective action on the chromatographic system.

15.2 From EICP of the quantification (primary) mass ions and the confirmatory mass ions, identify all target analytes according to the following criteria:

- The characteristic masses of each analyte of interest should maximize in the same, or within one scan of each other.
- The retention time should fall within ± 10 seconds of the retention time of the parent PAH from the preceding CCV. **Note:** When evaluating alkyl homolog groups, the retention time of the most intense peak within the group may not have the exact retention time of the most intense peak in the ANS reference standard. Analyst judgement and referral to each homolog groups' retention time window is essential for identification. Apply analyst judgment regarding corrective action when this criterion is not met.
- The relative peak heights of the primary ion compared to the confirmation or secondary ion masses for parent compounds should fall within ± 50 percent of the relative intensities of these masses in a the reference mass spectrum (*i.e.*, the mid-level of the initial calibration curve and/or the Alaska North Slope Crude Oil).

Note: The relative intensities of the primary and secondary ions may vary widely within a given group of alkyl homologs (*i.e.*, C₃-Naphthalenes). Thus, the pattern of each alkyl homolog cluster, and the retention time window for the cluster, will be the primary identification criteria for alkyl homologs. In some instances, a parent compound that does not meet secondary ion confirmation criteria may still be determined to be present in a sample after close inspection of the data by the experienced mass spectrometrists. Supportive data includes the presence of the secondary ion, but ratio value greater than ± 50 percent of the primary ion, may be caused by an interference of the secondary ion.

15.3 To calculate the **Relative Standard Deviation** (RSD) of all target analytes and surrogate compounds for the initial calibration use the formula below. The RSD of each target compound and surrogate must be below 25%. Additionally, use the initial six-point calibration to determine **Relative Response Factors** (RRF_{IS}) at each concentration level. Average the RRF_{IS}, to generate mean RRF_{IS}, for quantification of all target analytes and surrogate compounds. The RRF_{IS} are based on the internal standard compounds, and are calculated using the formula below. (The relative response factors for the continuing calibration verifications (RRF_{CS}) are calculated using the same formula). See Section 23.0, Table IA and Table IB, for the listing of target compounds and their associated internal standards for quantification.

$$\text{RSD} = \text{SD} / \text{mean RRF}_I \times 100$$

where:

SD = Standard deviation between the five points, for that target analyte.

$$\mathbf{RRF_I} = (\mathbf{A_c \times C_{IS}}) / (\mathbf{A_{IS} \times C_c})$$

where:

A_c = Area of the characteristic ion for the standard compound to be measured.

A_{IS} = Area of the characteristic ion for the representative internal standard compound.

C_{IS} = Concentration of the representative internal standard compound (ng/mL).

C_c = Concentration of the standard compound to be measured (ng/mL).

Note: Assign the response factor of the parent compound to the alkyl homolog cluster.

- 15.6 Based on the mean RRF_Is, calculate the **Sample Extract Amount** for each target analyte and surrogate in the extracts using the following formula:

$$\mathbf{Q_e} = (\mathbf{A_a \times Q_{IS}}) / (\mathbf{A_{IS} \times RRF_I})$$

where:

Q_e = Sample extract amount (ng) of target analyte, from quantitation report.

A_a = Area of the characteristic ion for the target analyte.

A_{IS} = Area of the characteristic ion for the representative internal standard compound.

Q_{IS} = Amount of internal standard compound added to each extract (ng).

- 15.7 Calculate the **Sample Concentration** (C) for each compound by the following formula:

$$\mathbf{C} = (\mathbf{Q_e / V_s}) \times \mathbf{DF}$$

where:

C = Concentration in sample (ng/L water, ug/Kg sediment/tissue, or mg/Kg product).

V_s = Original volume or weight of sample extracted.

DF = Dilution factor or fraction of the original extract to which internal standard added.

- 15.8 If the response of any individual target compound in a sample exceeds the linear response range, as defined by the initial calibration standards in Section 10.13, dilute the extract so that the concentrations of all individual target compounds fall within the range of the calibration curve. If that compound is also part of an alkyl homolog group, the group is considered to exceed the calibration range and thus, would also require dilution. Reported concentrations that are above the highest standard concentration in the initial calibration

are qualified with an “E”. If the response of any target compound in a sample exceeds the MDL but is below the reporting limit (RL), qualify the reported concentration with a “J”. If any target compound is found in the method blank and in the associated sample(s), qualify the reported concentration with a “B”.

- 15.9 Compare response factors for each compound in the *Continuing Calibration Verification* (CCV), to those of the initial calibration curve by determining the percent difference.

$$\text{Percent Difference (\%D)} = ([\text{RRF}_I - \text{RRF}_C] / \text{RRF}_I) \times 100$$

where:

RRF_I = Mean response factor from initial calibration.

RRF_C = Response factor from CCV.

- 15.10 All results must be reported to two significant figures. All solids including soils, sediments, and sludges must be reported on a dry-weight basis. Tissue results may be reported in wet-weight depending upon client request. Petroleum results are reported “as received” or on a wet-weight basis.
- 15.11 The analyst does data entry, or upload of the data, into the LIMS system. The LIMS is linked to the instrument, so the analyst must choose the sample(s) to be reported from that instrument’s analytical sequence. All associated preparation and instrumental QC samples and dilutions are also chosen. Once the data/samples have been selected and “associated” with the proper QC samples, the batched data set is sent to print.
- 15.12 The laboratory generates two types of data packages from the LIMS: “Standard” for routine projects, and “CLP-like” for fully data validated projects. A standard package consists of sample results and the associated QC sample results. A CLP-like package includes all sample results, all preparation and instrumental QC results and the associated supporting raw data. The checklists used for primary and secondary review of the analytical results can be found in Section 23.0. A secondary review is performed on all data.
- 15.13 Procedures for data and record management must adhere to the Quality Systems Manual, other subordinate documents covering record keeping, and the *Document Control* SOP, G-016. All records shall be stored in such a manner as to be safe and accessible for at least 10 years.
- 15.14 Notebooks: Laboratory notebooks are designed to accommodate the specific analysis. Instrument printouts are used to document run sequences, and each sequence printout is filed in a three-ring notebook. Each sequence notebook page is numbered. If a sample requires re-analysis or re-extraction for any reason, a notation is made next to the sample entry on the sequence log. The sequence run log is permanently bound, assigned an internal ID number, and filed accordingly. Such files shall be archived so as to remain

available for at least 10 years. All laboratory notebooks must follow the specifications in the *Laboratory Notebook Usage* SOP, G-009, and all record keeping and document control practices.

- 15.15 Electronic records: All data files from computers, attached to instruments, shall be backed up daily onto the proper directory on the server. The backups shall be stored so as to be accessible for 10 years. Movement of the data files to the server is the responsibility of the primary analyst. Server backup and storage is the responsibility of the IT department.

16.0 Method Performance

- 16.1 Refer to Alpha Analytical SOP#08-12 for a description of Initial Demonstration of Proficiency (IDP) which is performed by every new analyst during training.

17.0 Pollution Prevention

See Section 21.0, Waste Management for a discussion on Pollution Prevention.

18.0 Data Assessment and Acceptance Criteria

All Alkylated PAH-SIM results are reportable without qualification if analytical holding times are met, preservation requirements (including cooler temperatures) are met, and all QC criteria defined in the table below are met. If any of the below QC parameters are not met, all associated samples must be evaluated for re-analysis. See Sections 12.0, 13.0 and 14.0 for additional QC discussion including corrective actions for any QC outliers.

QC Parameter	Acceptance Criteria
Initial Calibration Curve	$\leq 25\%D$ for all target analytes with exception for 10% of target analytes can be $>25\%$, but $\leq 35\%$
Independent Calibration Verification	$\pm 20\%$ recovery of the true values
Continuing Calibration Verification	Analyzed every 10 samples or 24 hours, $\leq 25\%D$ for all target analytes with exception for 10% of target analytes can be $>25\%$, but $\leq 35\%$
Method Blank	No analyte at or above the reporting limit, "B" qualify analyte if detected and/or greater than 1/10 the amount found in samples
Laboratory Control Sample	50-130%R for all target analytes
Matrix Spike / Matrix Spike Duplicate	50-150%R for all target analytes, 30% RPD between the duplicates.
Sample / Sample Duplicate	30% RPD between the duplicates.
Surrogates	50% - 130% recovery
Internal Standards	50% - 200% of the daily CCV area for the Internal Standards
SRM	$\pm 35\% D$ or 65% - 135% recovery

19.0 Corrective Actions for Non-Compliant Data

Section 12.0, Quality Control, defines the corrective actions that must be taken in instances where QC outliers exist. If the corrective actions have been followed and the data is still unacceptable, reference Section 20.0 for guidance on reporting non-compliant data.

20.0 Contingencies for Handling Unacceptable Data

Section 18.0 outlines sample batch QC acceptance criteria. If non-compliant Alkylated PAH-SIM results are to be reported, the Section Supervisor and/or the Laboratory Director, and the QA Manager must approve the reporting of these results. The laboratory Project Manager shall be notified, and may choose to relay the non-compliance to the client, for approval, or other corrective action, such as re-sampling and re-analysis. The analyst or Section Supervisor performing the secondary review initiates the project narrative, and the narrative must clearly document the non-compliance and provide a reason for acceptance of these results.

21.0 Waste Management

The Alpha Analytical *Hazardous Waste and Sample Disposal* SOP (G-006), must be referenced for disposal of used standards, solvents, acids, reagents or other chemicals.

- 21.1 Once satisfactory Alkylated PAH-SIM results have been generated, the extracts are held for 30 days, or longer if specified by a client contract, then discarded into a 55-gallon drum labeled "Vial Waste".

22.0 References

References in addition to the analytical test methods listed in Section 1.0. Identification of Test Methods, used to create this SOP, include the following:

- 22.1 EPA/600/R-96/027, *Guidance for the Preparation of Standard Operating Procedures (SOPs) for Quality Related Documents*, 1996.
- 22.2 EPA, 40CFR, Part 136, Appendix B, 7/1997.
- 22.3 National Environmental Laboratory Accreditation Conference (NELAC) Standard, Chapter 5, 6/2003.
- 22.4 The Alpha Analytical *Quality Systems Manual*, Rev. 5.1, 5/2008.
- 22.5 Smith, Roy-Keith, *Handbook of Environmental Analysis*, 4th Edition, 1999.
- 22.6 Department of Defense *Quality Systems Manual for Environmental Laboratories*, Version 3, 5/2005.

23.0 Tables and Checklists

Table IA: PAH, Alkyl PAH, and Heterocyclic Target Compounds Internal Standard Reference

Compound	IS Reference	Compound	IS Reference
Decalin	1	Naphthobenzothiophene	1
C ₁ -Decalins	1	C ₁ -Naphthobenzothiophene	1
C ₂ -Decalins	1	C ₂ -Naphthobenzothiophene	1
C ₃ -Decalins	1	C ₃ -Naphthobenzothiophene	1
C ₄ -Decalins	1	Benzo[a]anthracene	2
Naphthalene	1	Chrysene	2
C ₁ -Naphthalenes	1	C ₁ -Chrysenes	2
C ₂ -Naphthalenes	1	C ₂ -Chrysenes	2
C ₃ -Naphthalenes	1	C ₃ -Chrysenes	2
C ₄ -Naphthalenes	1	C ₄ -Chrysenes	2
2-Methylnaphthalene	1	Benzo[b]fluoranthene	2
1-Methylnaphthalene	1	Benzo[k]fluoranthene	2
Acenaphthylene	1	Benzo[e]pyrene	2
Acenaphthene	1	Benzo[a]pyrene	2
Biphenyl	1	Perylene	2
Benzothiophene	1	Indeno[1,2,3-c,d]pyrene	2
2,6-Dimethylnaphthalene	1	Dibenz[a,h]anthracene	2
Dibenzofuran	1	Benzo[g,h,i]perylene	2
2,3,5-Trimethylnaphthalene	1		
Fluorene	1		
C ₁ -Fluorenes	1		
C ₂ -Fluorenes	1		
C ₃ -Fluorenes	1		
Dibenzothiophene	1		
C ₁ -Dibenzothiophenes	1	Surrogate Compounds	
C ₂ -Dibenzothiophenes	1	2-Methylnaphthalene-d ₁₀	1
C ₃ -Dibenzothiophenes	1	Pyrene-d ₁₀	1
C ₄ -Dibenzothiophenes	1	Benzo(b)fluoranthene-d ₁₂	2
Phenanthrene	1	5B(H) - cholane	2
Anthracene	1		
C ₁ -Phenanthrenes/Anthracenes	1	Internal Standards	
C ₂ -Phenanthrenes/Anthracenes	1	Acenaphthene-d ₁₀	1
C ₃ -Phenanthrenes/Anthracenes	1	Chrysene-d ₁₂	2
C ₄ -Phenanthrenes/Anthracenes	1		
1-Methylphenanthrene	1		
Carbazole	1		
Fluoranthene	1		
Pyrene	1		
C ₁ -Fluoranthrenes/Pyrenes	1		
C ₂ -Fluoranthrenes/Pyrenes	1		
C ₃ -Fluoranthrenes/Pyrenes	1		
C ₄ -Fluoranthrenes/Pyrenes	1		

Note: Alkylated phenanthrenes and anthracenes, and alkylated fluoranthenes and pyrenes are quantified together as total alkylated phenanthrene/anthracenes (using the phenanthrene parent response factor) and total alkylated fluoranthenes/pyrenes (using the pyrene parent response factor).

Table IB: Sterane and Triterpane Target Compounds Internal Standard Reference

Compound	IS Reference
C23 Tricyclic Terpane	2
C24 Tricyclic Terpane	2
C25 Tricyclic Terpane	2
C24 Tetracyclic Terpane	2
C26 Tricyclic Terpane-22S	2
C26 Tricyclic Terpane-22R	2
C28 Tricyclic Terpane-22S	2
C28 Tricyclic Terpane-22R	2
C29 Tricyclic Terpane-22S	2
C29 Tricyclic Terpane-22R	2
18a-22,29,30-Trisnorneohopane-TS	2
C30 Tricyclic Terpane-22S	2
C30 Tricyclic Terpane-22R	2
17a(H)-22,29,30-Trisnorhopane-TM	2
17a/b,21b/a 28,30-Bisnorhopane	2
17a(H),21B(H)-25-Norhopane	2
30-Norhopane	2
18a(H)-30-Norneohopane-C29Ts	2
17a(H)-Diahopane	2
30-Normoretane	2
18a(H)&18b(H)-Oleananes	2
17a(H),21B(H)-hopane-C30H52	2
Moretane	2
30-Homohopane-22S	2
30-Homohopane-22R	2
30,31-Bishomohopane-22S	2
30,31-Bishomohopane-22R	2
30,31-Trishomohopane-22S	2
30,31-Trishomohopane-22R	2
Tetrakishomohopane-22S	2
Tetrakishomohopane-22R	2
Pentakishomohopane-22S	2
Pentakishomohopane-22R	2
13b(H),17a(H)-20S-Diacholestane	2
13b(H),17a(H)-20R-Diacholestane	2
13b,17a-20S-Methyldiacholestane	2
14a(H),17a(H)-20S-Cholestane	2
14a(H),17a(H)-20R-Cholestane	2

13b,17a-20R-Ethyldiacholestane	2
13a,17b-20S-Ethyldiacholestane	2
14a,17a-20S-Methylcholestane	2
14a,17a-20R-Methylcholestane	2
14a(H),17a(H)-20S-Ethylcholestane	2
14a(H),17a(H)-20R-Ethylcholestane	2
14b(H),17b(H)-20R-Cholestane	2
14b(H),17b(H)-20S-Cholestane	2
14b,17b-20R-Methylcholestane	2
14b,17b-20S-Methylcholestane	2
14b(H),17b(H)-20R-Ethylcholestane	2
14b(H),17b(H)-20S-Ethylcholestane	2
C26,20R- +C27,20S- triaromatic steroid	2
C28,20S-triaromatic steroid	2
C27,20R-triaromatic steroid	2
C28,20R-triaromatic steroid	2

Table II: PAH, Alkyl PAH, Sterane and Triterpane Quantification Primary and Confirmation Ions

Compound	Quantification & Confirmation Ions	Compound	Quantification & Confirmation Ions
Decalin	138, 96	Pyrene	202, 101
C ₁ -Decalins	152	C ₁ -Fluoranthrenes/Pyrenes	216, 215
C ₂ -Decalins	166	C ₂ -Fluoranthrenes/Pyrenes	230, 215
C ₃ -Decalins	180	C ₃ -Fluoranthrenes/Pyrenes	244, 229
C ₄ -Decalins	194	C ₄ -Fluoranthrenes/Pyrenes	258
Naphthalene	128, 127	Naphthobenzothiophene	234, 189
C ₁ -Naphthalenes	142, 141	C ₁ -Naphthobenzothiophene	248
C ₂ -Naphthalenes	156, 141	C ₂ -Naphthobenzothiophene	262
C ₃ -Naphthalenes	170, 155	C ₃ -Naphthobenzothiophene	276
C ₄ -Naphthalenes	184, 169, 183	Benz[a]anthracene	228, 226
2-Methylnaphthalene	142, 141	Chrysene	228, 226
1-Methylnaphthalene	142, 141	C ₁ -Chrysenes	242, 241
Acenaphthylene	152, 153	C ₂ -Chrysenes	256, 241
Acenaphthene	154, 153	C ₃ -Chrysenes	270, 255
Biphenyl	154, 153	C ₄ -Chrysenes	284, 269
Benzothiophene	134	Benzo[b]fluoranthene	252, 253
2,6-Dimethylnaphthalene	156, 155	Benzo[k]fluoranthene	252, 253
Dibenzofuran	168, 139, 169	Benzo[e]pyrene	252, 253
2,3,5-Trimethylnaphthalene	170, 155	Benzo[a]pyrene	252, 253
Fluorene	166, 165	Perylene	252, 253
C ₁ -Fluorenes	180, 165	Indeno[1,2,3-c,d]pyrene	276, 138, 277
C ₂ -Fluorenes	194, 179, 195	Dibenz[a,h]anthracene	278, 139, 279
C ₃ -Fluorenes	208, 197	Benzo[g,h,i]perylene	276, 277
Dibenzothiophene	184, 152		
C ₁ -Dibenzothiophenes	198, 197	<u>Biomarker Compounds</u>	
C ₂ -Dibenzothiophenes	212, 197	Triterpanes	191
C ₃ -Dibenzothiophenes	226, 211	Steranes	217, 218
C ₃ -Dibenzothiophenes	240, 225	Triaromatic steroids	231
Phenanthrene	178, 176	<u>Surrogate Compounds</u>	
Anthracene	178, 176	2-Methylnaphthalene-d ₁₀	152, 150
C ₁ -Phenanthrenes/Anthracenes	192, 191	Pyrene-d ₁₀	212, 211
C ₂ -Phenanthrenes/Anthracenes	206, 191, 207	Benzo(b)fluoranthene-d ₁₂	264, 260
C ₃ -Phenanthrenes/Anthracenes	220, 205	5B(H) - cholane	217, 218
C ₄ -Phenanthrenes/Anthracenes	234, 219		
1-Methylphenanthrene	192	<u>Internal Standards</u>	
Carbazole	167, 139	Acenaphthene-d ₁₀	164, 162
Fluoranthene	202, 101	Chrysene-d ₁₂	240, 241

Note: Alkylated phenanthrenes and anthracenes, and alkylated fluoranthenes and pyrenes are quantified together as total alkylated phenanthrene/anthracenes (using the phenanthrene parent response factor) and total alkylated fluoranthenes/pyrenes (using the pyrene parent response factor).

Table III: Initial Calibration Checklist

Alpha Analytical Laboratories Mansfield, Mass
Forensic Group

PAH BY GC/MS -SIM Initial Calibration Verification Checklist

Sequence ID S1042901 **Run Start/End Date** 04/29/06

ICAL Method Used PAH10429 **Instrument ID** PAH# 1

	ICV ID	File #	Date	Time	PASS/FAIL	Comments	2nd
		PXXXXXX	MM/DD/YY	23:59			
ICV Check 1	I1042901	P19079	04/29/2006	1546	NA		
ICV Check 2	I1042902	P19080	04/29/2006	1713	NA		
ICV Check 3	I1042903	P19081	04/29/2006	1841	NA		
ICV Check 4	I1042904	P19082	04/29/2006	2007	NA		
ICV Check 5	I1042905	P19083	04/29/2006	2135	NA		
ICV Check 6	I1042906	P19084	04/29/2006	2302	NA		
ICV Check 7					NA		
ICC Check 1*	Q1032901	P19085	04/30/2006	0030	PASS		
ANS # 1	AWS1042901	P19086	04/30/2006	0158	PASS		
SA # 1							
SSF #1							
LAN # 1							
SFFC # 1							

Review (to be completed after ICAL has finished)

Comments

1. Is there a copy of the analytical sequence attached?	YES/NO/NA	
2. Did the PFTBA meet the tune criteria before ICAL? (69 base >100000, 219 30-60%, 502 5-11%)	YES/NO/NA	
3. Were all ICV injected within 24 hours of each other?	YES/NO/NA	
4. Were at least 5 Levels of each compound analyzed?	YES/NO/NA	
5. Was the primary ion used for all compounds?	YES/NO/NA	
6. Is the % RSD <25%	YES/NO/NA	
7. Is the parent RF entered for all homologues? (Including hopane/cholane for biomarkers)	YES/NO/NA	
8. Are benzo(b)/(k)fluoranthene resolved to 80% of baseline?	YES/NO/NA	

Comments

Primary Analyst _____ Date _____

Second Level Review Reprint updated Sticker sheet Date _____

Second level review must be done before ICAL can be used.
All Raw data must be attached.

* Second source

Table IV: Continuing Calibration Checklist

		CCV ID	File #	Date	Time	Pass/Fail	Comments	2nd
CCV ID	C	XMMDD0X	PXXXXXX	MM/DD/YY	23:59			
CCV Check #		C3050201	P35673	05/02/06	1222	PASS		
CCV Check #		C3050202						
CCV Check #		C3050203						
CCV Check #		C3050204						
CCV Check #		C3050205						
CCV Check #		C3050206						
CCV Check #								
CCV Check #								
CCV Check #								
CCV Check #								
CCV Check #								
CCV Check #								
CCV Check #								
CCV Check #								
CCV Check #								

Review (to be completed after sequence has finished)

Comments

1. Is there a copy of the analytical sequence attached?	YES/NO/NA	
2. Did the PFTBA meet the tune criteria before or during ICAL?	YES/NO/NA	
3. Were all CCV injected within 10 samples or 24 hours of each other?	YES/NO/NA	
4. Was the correct ICAL used to quantify each CCV?	YES/NO/NA	
5. Are the Internal Stds areas between 50-200% of the ICAL?	YES/NO/NA	
6. Is the % D <25% for 90% of analytes, <35% for all?	YES/NO/NA	
7. Are benzo(b)/(k)fluoranthene resolved to 80% of baseline?	YES/NO/NA	

Comments

Primary Analyst _____ Date _____

Second Level Review _____ Date _____

Table V: Data Review Checklist

GC/MS Project Checklist	Analysis Date: _____	1° Analyst: _____	2° Review: _____
	Report Date: _____	1° Analyst: _____	2° Review: _____
ETR: _____	Client: _____	Project: _____	

A. Analysis Review	1°	2°	QC Pass/Fail	Comments
1. PFTBA and ICAL meet criteria				
2. Instrument Check (ICV) - within limits (80-120%) (analyzed per ICAL)				
3. Control Oil (NSC) - within limits (65-135%) (analyzed per ICAL)				
4. CCV's meet criteria				
5. Applicable samples Re-run for failing CCV?				
6. Method Blank meets criteria				
7. LCS/LCSD - within limits (50-130% rec, ≤30%RPD)				
7a. MS/MSD - within limits (50-130% rec, ≤30%RPD)				
8. Sample Duplicates ≤30% RPD for analytes >5X the RL?				
9. Internal Standards - within limits (50-200% of the area of the IS in the associated CCV?				
10. Surrogate Recoveries - within limits (50-130%)				
11. Samples - Reviewed for appropriate integrations?				

B. Report Review	1°	2°	Changed?	Notes
12. Correct Initial Volume, Weight?				
13. Correct Final Volume?				
14. Correct Dilution used?				
15. PAH and/or Biomarker quantified vs. correct RF?				
16. Forms I, III, IV, VIII generated and included?				
17. % Solids included?				
18. Calculations correct for RL and reported concentrations?				
19. Narrate - QC issues from above				

C. Final Report	2°	Notes
20. EDD copies to PM?		
21. EDD generated, checked, and emailed to client?		
22. Hard Copy complete? Sent for pagination/scanning.		PM responsible for final Hard Copy data and delivery.

Protocol Modification Form: Fish/Decapod QAPP No. 8

Project Name and Number: Passaic RI 09.58.02.31

Material to be Sampled: Tissue

Measurement Parameter: Selenium

Standard Procedure for Field Collection & Laboratory Analysis (cite reference):

Columbia Analytical Services (CAS, Kelso) has revised the SOP for selenium analysis. The SOP referenced in Worksheet No. 23 of the Fish/Decapod QAPP as Attachment T12: "MET-7742, Standard Operating Procedure for Selenium by Borohydride Reduction Atomic Absorption, Revision 2, 1/6/2006".

Reason for Change in Field Procedure or Analysis Variation:

CAS, Kelso updated their selenium SOP to include text that describes their matrix spike additions procedure that was not documented previously in the SOP.

Variation from Field or Analytical Procedure:

The new CAS, Kelso selenium SOP "MET-7742, Standard Operating Procedure for Selenium by Borohydride Reduction Atomic Absorption, Revision 3, 2/19/2010", Attachment T12, is attached to this protocol modification form. Section 19 of the SOP details revisions that were made since the previous version (Revision 2). The most significant change was to include text to describe their matrix spike additions procedure.

Special Equipment, Materials or Personnel Required:

None.

Initiator's Name:



Date: 4/15/10

Project Manager:



Date: 4/27/10

QA Manager:



Date: 4/24/10

USEPA Authority:

Date: _____


STANDARD OPERATING PROCEDURE
SELENIUM BY BOROHYDRIDE REDUCTION ATOMIC ABSORPTION

MET-7742

Revision: 3

February 19, 2010

Approved By:



Supervisor

1/29/10
Date



QA Manager

1/29/10
Date



Laboratory Manager

1/29/10
Date

COLUMBIA ANALYTICAL SERVICES, INC.

1317 South 13th Avenue
Kelso, Washington 98626

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Annual review of this SOP has been performed
and the SOP still reflects current practice.

Initials: _____ Date: _____

Initials: _____ Date: _____

Initials: _____ Date: _____

DOCUMENT CONTROL

NUMBER: _____

Initials: _____ Date: _____

SELENIUM BY BOROHYDRIDE REDUCTION ATOMIC ABSORPTION**1. SCOPE AND APPLICATION**

- 1.1. This Standard Operating Procedure (SOP) describes the procedure used for the analysis of Selenium by borohydride reduction atomic absorption using EPA Method 7742 or Standard Method 3114B. This procedure describes the analysis procedures used to determine the analyte concentration and reporting limits listed. The sample preparation procedures are described in sample preparation SOPs MET-3010A, MET-3050B, and MET-TDIG.
- 1.2. This procedure is used to determine Selenium in water, soil, and tissue matrices. The procedure may be applied to other miscellaneous sample matrices providing that the analyst demonstrates the ability of the procedure to give data of acceptable quality in that matrix. The Method Reporting Limits (MRLs) are presented in Table 1. Method Detection Limits (MDLs) that have been achieved are also given.
- 1.3. In cases where there is a project-specific quality assurance plan (QAPP), the project manager identifies and communicates the QAPP-specific requirements to the laboratory. In general, project specific QAPP's supersede method specified requirements. An example of this are projects falling under DoD ELAP. QC requirements defined in the SOP *Department of Defense Projects – Laboratory Practices and Project Management (ADM-DOD)* may supersede the requirements defined in this SOP.

2. METHOD SUMMARY

- 2.1. Samples are prepared according to the nitric acid digestion procedure described in Method 3010 for aqueous and extract samples, the nitric/peroxide/hydrochloric acid digestion procedure described in Method 3050 for sediments, soils, and sludges, and the nitric/closed vessel digestion for tissues. Excess peroxide is removed by evaporating samples to near-dryness at the end of the digestion followed by dilution to volume and degassing the samples upon addition of urea. The selenium is converted to the +4 oxidation state during digestion in HCl. Selenium is then converted to its volatile hydride using hydrogen produced from the reaction of the acidified sample with sodium borohydride in a continuous-flow hydride generator.
- 2.2. The volatile hydrides are swept into, and decompose in, a heated quartz absorption cell located in the optical path of an atomic absorption spectrophotometer. The resulting absorption of the lamp radiation is proportional to the selenium concentration..

3. DEFINITIONS

- 3.1. Analysis Sequence - Samples are analyzed in a set referred to as an analysis sequence. The sequence begins with instrument calibration (initial or continuing verification) followed by sample extracts interspersed with calibration standards (CCBs, CCVs, etc...) The sequence ends when the set of samples has been injected or when qualitative and/or quantitative QC criteria indicate an out-of-control situation.
- 3.2. Independent Calibration Verification (ICV) - Initial calibration verification standards that are analyzed after initial calibration with newly prepared standards but prior to sample analysis, in order to verify the validity of the standards used in calibration. The ICV standards are prepared from a materials obtained from a source different from that used to prepare calibration standards.
- 3.3. Matrix Spike (MS) Analysis - In the matrix spike analysis, predetermined quantities of target analytes are added to a sample matrix prior to sample preparation and analysis. The purpose of the matrix spike is to evaluate the effects of the sample matrix on the method used for the analysis.
- 3.4. Duplicate Sample (DUP) A laboratory duplicate. The duplicate sample is a separate field sample aliquot that is processed in an identical manner as the sample proper. The relative percent difference between the samples is calculated and used to assess analytical precision.
- 3.5. Standard Curve - A standard curve is a calibration curve that plots concentrations of a known analyte standard versus the instrument response to the analyte. A linear regression calibration model is used. The appropriate criteria for assessing the validity of the calibration curve must be followed prior to quantitation of target analytes in actual sample analyses.
- 3.6. Method Blank (MB) - The method blank is an artificial sample composed of analyte-free water or solid matrix and is designed to monitor the introduction of artifacts into the analytical process. The method blank is carried through the entire analytical procedure.
- 3.7. Continuing Calibration Verification Standard (CCV) - A mid-level standard analyzed at specified intervals. Used to verify that the initial calibration curve is still valid for quantitative purposes.
- 3.8. Instrument Blank (CCB) - The instrument blank (also called continuing calibration blank) is a volume of clean solvent analyzed on each column and instrument used for sample analysis. The purpose of the instrument blank is to determine the levels of contamination associated with the instrumental analysis itself, particularly with regard to the carry-over of analytes from standards or highly contaminated samples into subsequent sample analyses.
- 3.9. Method of standard additions (MSA) - The standard addition technique involves adding known amounts of standard to one or more aliquots of the processed sample solution. This technique attempts to compensate for a sample constituent that enhances or

depresses the analyte signal, thus producing a different slope from that of the calibration standards. It will not correct for additive interferences which cause a baseline shift.

4. INTERFERENCES

- 4.1. Very high (>1000 mg/L) concentrations of cobalt, copper, iron, mercury, and, nickel can cause analytical interferences through precipitation as reduced metals and associated blockage of transfer lines and fittings.
- 4.2. Traces of peroxides left following the sample work-up can result in analytical interferences. Peroxides must be removed by evaporating each sample to near-dryness followed by reacting each sample with urea and allowing sufficient time for degassing before analysis.
- 4.3. Even after acid digestion, flame gases and organic compounds may remain in the sample. Flame gases and organic compounds can absorb at the analytical wavelengths and background correction should be used.

5. SAFETY

- 5.1. All appropriate safety precautions for handling solvents, reagents and samples must be taken when performing this procedure. This includes the use of personnel protective equipment, such as, safety glasses, lab coat and the correct gloves.
- 5.2. Chemicals, reagents and standards must be handled as described in the CAS safety policies, approved methods and in MSDSs where available. Refer to the CAS Environmental, Health and Safety Manual and the appropriate MSDS prior to beginning this method.
- 5.3. Hydrochloric and/or Nitric Acid are used in this method. These acids are extremely corrosive and care must be taken while handling them. A face shield should be used while pouring acids. And safety glasses should be worn while working with the solutions. Lab coat and gloves should always be worn while working with these solutions.

6. SAMPLE COLLECTION, CONTAINERS, PRESERVATION, AND STORAGE

- 6.1. Aqueous samples are typically collected in plastic containers. Aqueous samples are preserved with nitric acid ($\text{pH} < 2$), then refrigerated at $4 \pm 2^\circ\text{C}$ from receipt until analysis.
- 6.2. Non-aqueous samples may be collected in plastic or glass jars. Non-aqueous samples are refrigerated at $4 \pm 2^\circ\text{C}$ from receipt until analysis. Non-aqueous samples should be analyzed as soon as possible following sampling.
- 6.3. Tissue samples are typically collected in plastic or glass jars. Prepared samples are stored frozen at $< 10^\circ\text{C}$ until preparation. Tissue samples can be held up to one year.

7. REAGENTS AND STANDARDS

7.1. Reagents

7.1.1. Reagent grade chemicals shall be used in all tests. Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lowering the accuracy of the determination.

7.1.2. Concentrated Hydrochloric Acid (HCl)

7.1.3. 4% Sodium Borohydride (NaBH_4). 20g NaBH_4 plus 2g of sodium hydroxide dissolved in 500mL of reagent water.

7.1.4. Urea (H_2NCONH_2)

7.1.5. Reagent and grade

7.2. Standards

7.2.1. Stock standard solutions may be purchased from a number of vendors. All standards purchased from vendors must be traceable to NIST or A2LA certified reference materials. Purchased standards are typically prepared at a concentration of 1000 ppm, and are prepared in 500 mL plastic bottles. The vendor-assigned expiration date is used.

7.2.2. A 1000 ppb intermediate stock standard is prepared by pipetting 0.100 mL of 1000 ppm stock standard, plus 1.0 mL of concentrated HNO_3 , into a 100 mL volumetric and diluting to volume with reagent water.

7.2.3. The ICV is prepared at 10 ppb as described above. The 1000 ppb intermediate stock used for the ICV is prepared from a source independent of the original 1000 ppm purchased standard.

8. APPARATUS AND EQUIPMENT

8.1. Perkin Elmer AAnalyst 200 - Atomic Absorption Spectrophotometer.

8.1.1. FIAS -100 Vapor Generator

8.1.2. Quartz Absorbance Cell

8.1.3. Selenium Hollow Cathode Lamp

8.2. Digestion Hot-Block capable of maintaining 50°C

8.3. 50 mL Centrifuge Tubes

8.4. Hot Plates capable of maintaining 50°C

8.5. 50 mL Volumetric Flasks

9. PREVENTIVE MAINTENANCE

9.1. All maintenance activities are recorded in a maintenance logbook kept for each instrument. Pertinent information (serial numbers, instrument I.D., etc.) must be in the logbook. Maintenance entries should include date, symptom of problem, corrective actions, description of maintenance, date, and name. The log should contain a reference to return to analytical control.

9.2. Typical preventive maintenance measures include, but are not limited to, the following items:

- Cleaning the nebulizer and burner head
- Cleaning the gas liquid separator
- Inspection of the hollow cathode and deuterium lamp conditions

10. RESPONSIBILITIES

10.1. It is the responsibility of the analyst to perform the analysis according to this SOP and to complete all documentation required for data review. Analysis and interpretation of the results are performed by personnel in the laboratory who have demonstrated the ability to generate acceptable results utilizing this SOP. This demonstration is in accordance with the training program of the laboratory. Final review and sign-off of the data is performed by the department supervisor/manager or designee.

10.2. It is the responsibility of the department supervisor/manager to document analyst training. Documenting method proficiency, as described in Methods 7742 and 3114B, is also the responsibility of the department supervisor/manager.

11. PROCEDURE

11.1. Sample Preparation

11.1.1. Water samples are first prepared by EPA Method 3010A (CAS SOP; MET-3010A), soil samples by EPA Method 3050B (CAS SOP; MET-3050) with modifications noted below, and tissue samples by closed vessel digestion (CAS SOP; MET-TDIG).

Note: The 3050B soil digestion is modified as follows: After the final peroxide addition (i.e. before the final reduction stage) add 5.0mL of concentrated hydrochloric acid and reduce the digestate volume to less than 5.0mL, but not to dryness. After cooling, dilute the digestate to 100mL with reagent water.

11.2. Digestate Preparation for hydride analysis

11.2.1. Waters – 25 mL of the water digestate is aliquoted to a 50 mL centrifuge tube and 20 mL of concentrated HCl is added. The centrifuge cap is loosely placed on the tube and the sample is heated in a digestion hot-block at 50°C for 30 minutes. After cooling the sample is diluted to 50 mL as needed resulting in a two fold dilution of the original digestate.

11.2.2. Soil/Sediment - 25 mL of the soil/sediment digestate is aliquoted to a 50 mL centrifuge tube. 0.5 g of Urea is added followed by 20 mL of concentrated HCl. The centrifuge cap is loosely placed on the tube and the sample is heated in a digestion hot-block at 50°C for 30 minutes. After cooling the sample is diluted to 50 mL as needed resulting in a two fold dilution of the original digestate.

11.2.3. Tissues – 8.0 mL of the tissue digestate is aliquoted to a 50 mL centrifuge tube. 0.4 g of Urea is added followed by 16 mL of concentrated HCl. The centrifuge cap is loosely placed on the tube and the sample is heated in a digestion hot-block at 50°C for 30 minutes. After cooling the sample is diluted to 40 mL as needed resulting in a five fold dilution of the original digestate.

11.3. Standard Preparation

11.3.1. Working standards are prepared in 100 mL volumetric flasks by aliquoting 0, 0.025, 0.05, 0.25, 0.375, and 0.5 mL of 1000 ug/ L intermediate standard into 50 mL centrifuge tube containing approximately 15 mL of reagent water. When analyzing tissues, an additional low point using 0.01 mL of the 1000ug/L intermediate is prepared. The appropriate amounts of concentrated HCl and/or HNO₃ are added in order to replicate the matrix of the initial 3010A, 3050B, or tissue digests. An additional 25 mL of concentrated HCl is added and the beakers are covered with a watchglass and heated on a hotplate at 50°C of 30 minutes. After cooling the standards are quantitatively transferred to 50 mL volumetric flask and diluted to volume with reagent water.

11.3.2. An Independent Calibration Verification (ICV) standard is prepared by aliquoting 0.375 mL of a 1000 ug/L intermediate standard prepared from a different source than the intermediate used for the calibration standards. This standard is then processed as described above.

11.4. Method of Standard Additions (MSA):

11.4.1. For Soil and Tissue digestions the single point MSA technique is utilized by default. The matrix of these digests has been shown to produce a low bias of varying degrees when analyzed using the Perkin Elmer hydride system. This low bias is corrected for using the MSA procedure described in section 9.10.1 of EPA method 7000B Revision 2. After the sample digestate is prepared as described above in section 11.1 of this SOP, two 10 mL aliquots are placed in separate autosampler tubes. To the MSA aliquot 0.05 mL of 1000 ppb standard is added. After the two sample aliquots are analyzed the solution concentration (C_X) can be calculated using the following equation:

$$C_X = \frac{S_B * V_S * C_S}{(S_A - S_B) V_X}$$

Where:

S_B = analytical signal of parent sample
 S_A = analytical signal of MSA sample
 V_S = volume of standard added to the MSA sample
 V_X = volume of sample aliquots
 C_S = concentration of spike solution

Alternately, C_X can be calculated with solution concentrations using the following equation:

$$C_X = \frac{C_P * V_S * C_S}{(C_M - C_P) V_X}$$

Where:

C_P = measured concentration of the parent sample
 C_M = measured concentration of the MSA sample
 V_S = volume of standard added to the MSA sample
 V_X = volume of sample aliquots
 C_S = concentration of spike solution

Once C_X is determined the final sample concentration is calculated by the appropriate reporting software based on the initial sample aliquot and subsequent digestion and instrumental dilutions, and total solids if applicable.

Note: Since the change of volume from spiking the MSA aliquot is only 0.5%, which is insignificant relative to the accuracy and precision of the final result, this dilution is ignored in the calculations above.

11.5. Instrument Setup

A Perkin Elmer AA200 is used in conjunction with the FIAS-100 hydride generator, and a burner head mounted quartz cell. The sample and carrier (10% HCl) flows are set at 4.2 mL/min and the borohydride (0.5% Sodium Borohydride) flow at 2.1 mL/min. The instrument is optimized to wavelength of 196.0 nm, with a slit width 1.0. The burner is ignited and the system is allowed to warm up for 10 minutes prior to starting the analysis.

CAUTION: The hydride of selenium is very toxic. Precautions must be taken to avoid inhaling the gas.

11.6. Calibration and Analysis

11.6.1. The sampling tube is placed into the calibration blank, allowed to come to equilibrium, and then analyzed. The remaining calibration standards are analyzed similarly in ascending order. After the calibration curve is complete the r value is calculated. If the r value is not ≥ 0.995 then the calibration is rejected and must be re-analyzed.

11.6.2. Immediately following the calibration the ICV solution is analyzed followed in order by an Initial Calibration Blank (ICB), Continuing Calibration Verification (CCV), Continuing Calibration Blank (CCB), and the MRL check standard (i.e. the low calibration standard). ICV and CCV recoveries must fall within $\pm 10\%$ of their true value, and ICB and CCB results must be less than 3x MDL.

11.6.3. Once the above calibration and QC check standards have been successfully run the samples are ready to be analyzed. After a maximum of 10 samples have been analyzed an additional set of CCV and CCB standard must be analyzed using the criteria described above. If one or both of these standards are out of control the problem must be corrected, the instrument recalibrated, the initial QC check standards analyzed, and the samples following the last compliant CCV/CCB check re-analyzed.

11.7. List any matrix modifiers or reducing agents used in the analysis on the associated raw data

12. QUALITY CONTROL

12.1. Initial Precision and Recovery Validation

The precision of the procedure must be validated before sample analysis, or whenever significant changes to the procedures have been made. To do this, four water samples are spiked with the LCS spike solution, then prepared and analyzed.

12.2. Method Detection Limits

12.2.1. A method detection limit (MDL) study must be undertaken before analysis of samples can begin. To establish detection limits that are precise and accurate, the analyst must perform the following procedure. Spike seven blank matrix (water or soil) samples at a level near, or below the MRL. Follow the analysis procedures in Section 11 to analyze the samples.

12.2.2. Calculate the average concentration found (\bar{x}) in $\mu\text{g/mL}$, and the standard deviation of the concentrations (s) in $\mu\text{g/mL}$ for each analyte. Calculate the MDL for each analyte. Refer to the CAS *SOP Performing Method Detection Limit Studies and Establishing Limits of Detection and Limits of Quantification*. The MDL study must be verified annually.

12.3. Limits of Quantification - LOQ

12.3.1. Method 7000B requires the laboratory establish a LOQ for each analyte as the lowest reliable laboratory reporting concentration or in most cases the lowest point in the calibration curve which is less than or equal to the desired regulatory action levels, based on the stated project requirements. Analysis of a standard prepared at the LOQ concentration levels or use of the LOQs as the lowest point calibration standard provides confirmation of the established sensitivity of the method. The LOQ recoveries must be within **30%** of the true values to verify the data reporting limit. Refer to the CAS *SOP Performing Method Detection Limit Studies and Establishing Limits of Detection and Limits of Quantification*.

12.4. Ongoing QC Samples required are described in the CAS-Kelso Quality Assurance Manual and in the SOP for Sample Batches. Additional QC Samples may be required in project specific quality assurance plans (QAPP). For example projects managed under the DoD ELAP must follow requirements defined in the DoD *Quality Systems Manual for Environmental Laboratories*. General QA requirements for DoD QSM are defined in the laboratory SOP, *Department of Defense Projects – Laboratory Practices and Project Management (ADM-DOD)*. General QC Samples and their default control criteria are:

12.4.1. Method Blank

12.4.1.1. A method blank is extracted and analyzed with every batch of 20 (or fewer) samples to demonstrate that there are no method interferences. If the method blank shows any hits above the MRL for standard applications, or $\frac{1}{2}$ the MRL for DoD projects, corrective action must be taken.

Corrective action includes recalculation, reanalysis, system cleaning, or re-extraction and reanalysis. Reanalysis may only be done once.

12.4.2. Lab Control Sample (LCS)

12.4.2.1. The laboratory control sample for water samples is composed of analyte-free water into which Selenium is spike. The laboratory control sample for soils and tissues consists of an appropriate reference material (e.g. ERA DO65-540 for soils, NRCC TORT-3 for tissues). The LCS is designed to monitor the accuracy of the procedure. The concentration of the spike in the LCS matrix should be at 5 to 10 times the MRL or at levels specified by a project analysis plan.

12.4.3. A lab control sample (LCS) must be prepared and analyzed with every batch of 20 (or fewer) samples. Calculate the LCS recovery as follows:

$$\%R = X/TV \times 100$$

Where X = Concentration of the analyte recovered

TV = True value of amount spiked

The acceptance criterion is **80-120%**. Acceptance limits for other reference materials is specific to the material used. Also, other project-specific limits may be required. If the LCS fails acceptance criteria, corrective action must be taken. Corrective action includes recalculation, reanalysis, or re-extraction and reanalysis.

12.4.4. Matrix Spike

12.4.5. A matrix spike (MS) must be prepared and analyzed with every batch of 20 (or fewer) samples. The MS is prepared by adding a known volume of the matrix spike solution to the sample and determining the spiked sample concentration. Calculate percent recovery (%R) as:

$$\%R = \frac{X - X1}{TV} \times 100$$

Where X = Concentration of the analyte recovered

X1 = Concentration of unspiked analyte

TV = True value of amount spiked

12.4.6. The acceptance limits for the MS is **75-125%** for all matrices. Also, other project-specific limits may be required. If the MS recovery is out of acceptance limits for reasons other than matrix effects, corrective action

must be taken. Corrective action includes recalculation, reanalysis, or re-preparation and reanalysis.

- 12.4.7. A Duplicate sample is prepared and analyzed one per batch, or per 20 samples. Calculate Relative Percent Difference (RPD) as:

$$RPD = \frac{|R1 - R2|}{(R1 + R2) / 2} \times 100$$

Where R1= result for the sample

R2= result for the sample duplicate

The RPD criterion is **20%**. If outside the limit, redigest the sample batch. Determine if the sample is non-homogenous and redigest if it is homogenous.

12.5. Recovery test (post-digestion spike)

- 12.5.1. The recovery test must be done on all water samples within a digestion batch were that batch's MS fails.

- 12.5.2. The same sample from which the MS/MSD aliquots were prepared (assuming the MS/MSD recoveries are unacceptable) should also be spiked with a post digestion spike. Otherwise another sample from the same preparation should be used as an alternative. An analyte spike is added to a portion of a prepared sample, or its dilution, and should be recovered to within **80% to 120%** of the known value. The spike addition should produce a minimum level of 10 times and a maximum of 100 times the lower limit of quantitation. If both the MS/MSD and the post digestion spike fail, then matrix effects are confirmed.

- 12.6. Prior to preparation of samples, blanks should be analyzed to determine possible interferences from sample handling steps, reagents, or glassware. If the blanks show contamination, the source of the contamination should be isolated and minimized.

13. DATA REDUCTION AND REPORTING

- 13.1. The concentration of the analyte(s) in the sample digest (Cex) is calculated using the calibration curve. The concentration of analytes in the original samples is computed using the following equations:

Aqueous Samples:

$$\text{Concentration } (\mu\text{g} / \text{L}) = \frac{(C_{ex}) (V_f) (D)}{(V_s)}$$

Where Cex = Concentration in digestate in µg/mL
 Vf = Final volume of extract in mL
 D = Dilution factor
 Vs = Volume of sample digested, liters

Nonaqueous Samples:

$$\text{Concentration (mg / Kg)} = \frac{(Cex) (Vf) (D)}{(W)}$$

Where Cex = Concentration in digestate in µg/mL
 Vf = Final volume of extract in mL
 D = Dilution factor
 W = Weight of sample digested in grams. The wet or dry weight may be used, depending upon the specific client requirements.

- 13.2. Sample concentrations are reported when all QC criteria for the analysis has been met. Reported results not meeting QC criteria must be qualified with a standard CAS footnote.

13.3. Data Review

Following primary data interpretation and calculations, all data is reviewed by a secondary analyst. Following generation of the report, the report is also reviewed. Refer to the *SOP for Laboratory Data Review Process* for details.

13.4. Reporting

13.4.1. Reports are generated in the MARRS or Harold reporting softwares by compiling the SMO login, sample prep database, instrument date, and client-specified report requirements (when specified). The compiled data is also used to create EDDs.

13.4.2. As an alternative, reports are generated using Excel® templates located in R:\ICP\FORMS. The analyst should choose the appropriate form and QC pages to correspond to required tier level and deliverables requirements. The results are then transferred, by hand or electronically, to the templates.

14. CONTINGENCIES FOR HANDLING OUT-OF-CONTROL OR UNACCEPTABLE DATA

Corrective action measures applicable to specific analysis steps are discussed in the applicable section of this (and other applicable) SOP(s). Also, refer to the SOP for *Nonconformity and Corrective Action* for correct procedures for identifying and documenting such data. Procedures

for applying data qualifiers are described in the SOP for *Report Generation* or in project-specific requirements.

15. METHOD PERFORMANCE

- 15.1. This method was validated through single laboratory studies of accuracy and precision. Refer to the reference method for additional available method performance data.
- 15.2. The method detection limit (MDL) is established using the procedure described in the SOP *Performing Method Detection Limit Studies and Establishing Limits of Detection and Quantification* (ADM-MDL). Method Reporting Limits are established for this method based on MDL studies and as specified in the CAS Quality Assurance Manual.

16. POLLUTION PREVENTION

It is the laboratory's practice to minimize the amount of solvents, acids and reagent used to perform this method wherever feasible. Standards are prepared in volumes consistent with methodology and only the amount needed for routine laboratory use is kept on site. The threat to the environment from solvent and reagents used in this method can be minimized when recycled or disposed of properly.

17. WASTE MANAGEMENT

- 17.1. The laboratory will comply with all Federal, State and local regulations governing waste management, particularly the hazardous waste identification rules and land disposal restrictions as specified in the CAS EH&S Manual.
- 17.2. This method uses acid. Waste acid is hazardous to the sewer system and to the environment. All acid waste must be neutralized to a pH of 2.5-12 prior to disposal down the drain. The neutralization step is considered hazardous waste treatment and must be documented on the treatment by generator record. See the CAS EH&S Manual for details.

18. TRAINING OUTLINE

- 18.1. Review literature (see references section). Review the SOP. Also review the applicable MSDS for all reagents and standards used. Following these reviews, observe the procedure as performed by an experienced analyst at least three times.
- 18.2. The next training step is to assist in the procedure under the guidance of an experienced analyst for a period of approximately two weeks. During this period, the analyst is expected to transition from a role of assisting, to performing the procedure with minimal oversight from an experienced analyst.

- 18.3. Perform initial precision and recovery (IPR) study as described above for water samples. Summaries of the IPR are reviewed and signed by the supervisor. Copies may be forwarded to the employee's training file.

19. CHANGES SINCE THE LAST REVISION

- 19.1. Sec 1.3 is new.
19.2. Updated references to include method 7000B.
19.3. Sec 3.9 Added definitions for MSA.
19.4. Remove old section 7.2.3.
19.5. Sec 11.2 is new
19.6. Sec 11.3.1 Updated range on procedure for standard prep.
19.7. Sec 11.3.2 Changed ICV amt from 1 ml to 0.375 ml.
19.8. Sec 11.4 MSA is new
19.9. Sec 12.2.2 Updated MDL reference and requirement to verify annually.
19.10. Sec 12.3 on LOQ is new.
19.11. Sec 12.4 is new.
19.12. Sec 12.4.1 Rewritten to include DoD criteria.
19.13. Sec 12.4.3 and 12.4.6 Updated recovery limits to follow 7000B
19.14. Sec 12.4.7 Updated RPD limit to follow 7000B.
19.15. Sec 12.5 is new.

20. REFERENCES

- 20.1. EPA Method 7742, Revision 0, 1994
20.2. EPA Method 7000B, Revision 2, 1998
20.3. *Standard Methods* 3114B, 20th Edition

TABLE 1

SELENIUM MRLs, and MDLs

Analyte	Method Reporting Limit	Method Detection Limit
Water	1.0 ug/L	0.2 ug/L
Soil	0.1 mg/Kg (dry)	0.03 mg/Kg (dry)
Tissue	0.1 mg/Kg (dry)	0.05 mg/Kg (dry)

Protocol Modification Form: Fish/Decapod QAPP No. 9

Project Name and Number: Passaic RI 09.58.02.31

Material to be Sampled: Tissue

Measurement Parameter: Total metals (excluding selenium, inorganic arsenic, mercury and methylmercury).

Standard Procedure for Field Collection & Laboratory Analysis (cite reference):

Worksheet No.15 of the Fish/Decapod QAPP states that calcium, chromium, iron, magnesium, potassium, sodium, and vanadium will be analyzed using USEPA Method SW-846 6010B, and all other metals (excluding selenium, inorganic arsenic, mercury and methylmercury) will be analyzed by USEPA Method SW-846 6020.

Reason for Change in Field Procedure or Analysis Variation:

Columbia Analytical Services, Inc (CAS, Kelso) will conduct the USEPA Method SW-846 6010B analysis for all metals (excluding selenium, inorganic arsenic, mercury, and methylmercury) on tissue samples first, and then will conduct the 6020 analysis for analytes with undetected concentrations or for analytes that have quality issues in the initial 6010B analysis.

Variation from Field or Analytical Procedure:

Metals may be analyzed by either USEPA Method SW-846 6010B or 6020, and the actual analyte list for 6020 and 6010B analysis may not match what was presented in Fish/Decapod QAPP Worksheet No. 15.

Special Equipment, Materials or Personnel Required:

None.

Initiator's Name:



Date: 4/16/10

Project Manager:



Date: 4/27/10

QA Manager:



Date: 4/24/10

USEPA Authority:

Date:

Protocol Modification Form: Fish/Decapod QAPP No. 10

Project Name and Number: Passaic RI 09.58.02.31

Material to be Sampled: Tissue

Measurement Parameter: Processing and preparation of tissue samples for analysis.

Standard Procedure for Field Collection & Laboratory Analysis (cite reference):

Addendum to Attachment O of the Fish/Decapod QAPP.

Reason for Change in Field Procedure or Analysis Variation:

Revisions to Attachment O of the Fish/Decapod QAPP were requested by The Louis Berger Group, Inc. as a result of their March 10, 2010 crab processing audit of Alpha Analytical. Modifications to the Addendum to Attachment O were made to accurately describe the crab and fish tissue processing methods.

Variation from Field or Analytical Procedure:




The revised Addendum to Attachment O (Revision 1, 5/21/10), which is attached to the protocol modification form, now describes the following:

1. Alpha Analytical follows their own SOP for decontamination procedures during tissue processing (Alpha Analytical's Tissue Preparation and Homogenization SOP, OP-003, Revision 3, 4/29/10) rather than those described in Attachment I.
2. The text was clarified to state that Alpha Analytical will follow their SOP (Alpha Analytical's Tissue Preparation and Homogenization SOP, OP-003, Revision 3, 4/29/10) to create the rinsate blank. Please note that the rinsate blank includes a rinse of the powder-free latex gloves that are used during processing.
3. To access the internal tissue of the crab, the carapace is removed by cutting rather than pulling apart the crab by hand.
4. Crab carcass tissue has been defined to include gills, stomach, heart, intestines, cartilage, testes, eggs, and the soft part of the undercarriage where the stomach is attached. The carcass does not include the carapace (or soft-shell if molting), cheliped shell, or leg shells.
5. The removal of crab legs is described in addition to the removal of claws.
6. Dissection equipment is now more accurately described as stainless steel tools rather than stainless steel knives and spoons.
7. Rather than removing damaged crabs from the composite, the protocol of notifying Windward is described.
8. The thaw time of 7 hours was defined for blue crab specimens.
9. More detail was added to describe the processing of all crab tissue types, including hepatopancreas/muscle, muscle-only, carcass, and hepatopancreas.
10. The order of the fish dissection procedure was changed so that the cut behind the gill cover occurs before cuts are made near the dorsal fins.
11. Text was added to Figure 2 to clarify that fish are rinsed with deionized water prior to processing, and that the skin of scaleless fish can be removed after filleting if necessary.

12. More detail was added to describe the procedure for packing and shipping the samples, including the addition of the temperature blank.

Special Equipment, Materials or Personnel Required:

All necessary equipment is summarized in the revised Attachment O (Alpha Analytical's Tissue Preparation and Homogenization SOP, OP-003, Revision 3, 4/29/10)

Initiator's Name:		Date:	<u>5/21/10</u>
Project Manager:		Date:	<u>5/21/10</u>
QA Manager:		Date:	<u>5/21/10</u>
USEPA Authority:	_____	Date:	_____

Addendum to Attachment O

Revision 1

Revision Date: 05/21/10

I. Introduction

Attachment O (Alpha Analytical's Tissue Preparation and Homogenization SOP, OP-003, Revision 3, April 29, 2010) presents the laboratory SOP for the processing and preparation of fish and decapod tissue samples, including rinsate blank preparation and decontamination of tissue processing equipment, for the Lower Passaic River Restoration Project (LPRRP) tissue samples. The project-specific SOP for decontamination procedures of field equipment are presented in Attachment I. This addendum to Attachment O presents additional project-specific details on the process of how sample type (e.g., composite vs. individual) will be determined and additional details on preparing specific samples in the laboratory not specified in the laboratory SOP (Attachment O). If there is a discrepancy between the laboratory SOP (Attachment O) and the Addendum to Attachment O, the Addendum to Attachment O will be followed.

II. Summary of process for determining tissue samples for analysis

Figure 1 presents the general process of how samples will be collected and prepared for analysis.

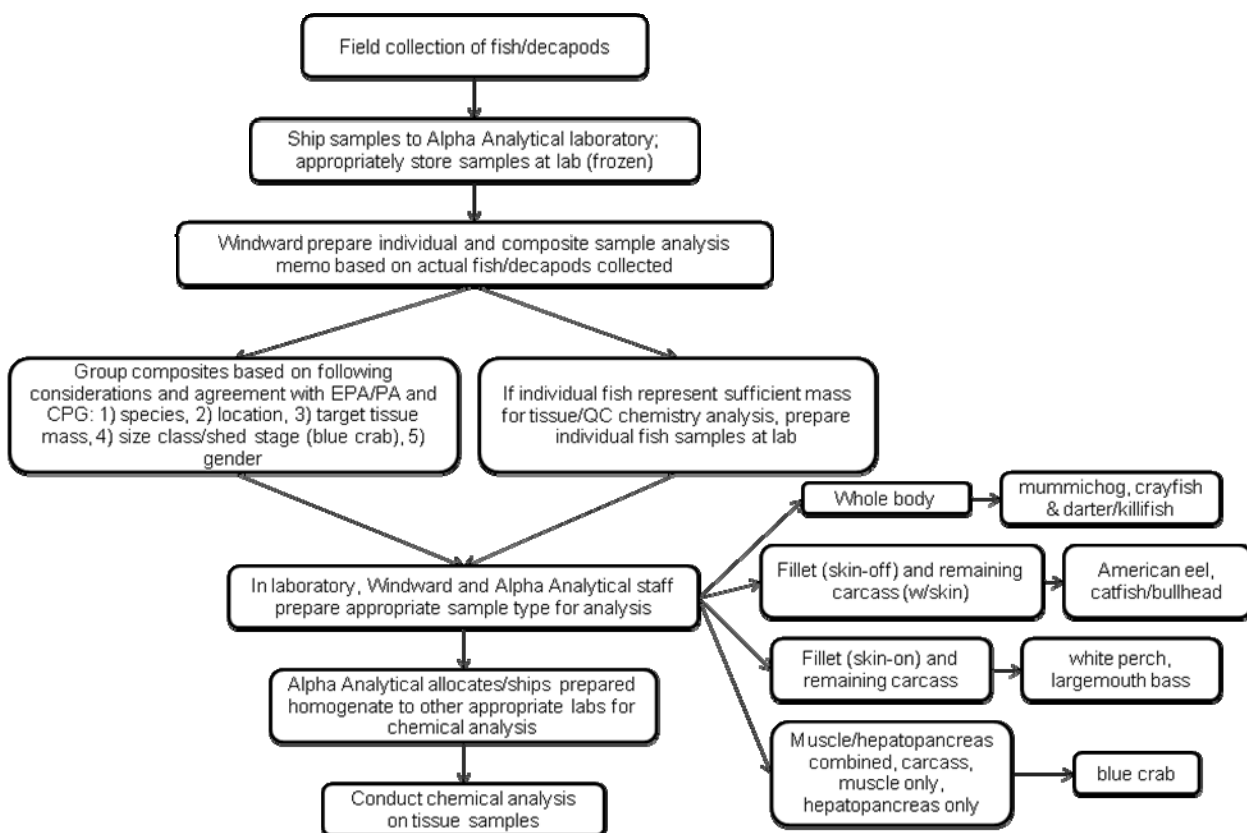


Figure 1. General process for preparing fish and decapod tissue samples for analysis

All sample preparation (e.g., compositing and homogenization) will occur at the analytical laboratory. Once the fish and decapods samples are all collected and submitted to the laboratory, Windward will prepare an individual and compositing sample analysis memorandum that will provide the plan for chemical analysis of the individuals collected. If necessary, composites will be done on a species-specific and reach-specific basis (where possible). Also considered in the compositing design will be the size class (individuals included in a given composite will be of similar size so that the smallest individual in a composite is no less than 75% of the length of the largest individual (USEPA 2000b)), targeted tissue mass needed for chemistry/QC analysis, and gender of individual organisms. Per request of USEPA, individual fish that have sufficient mass for meeting analytical and QC requirements will be analyzed as individuals.

Any composite samples will follow the compositing design presented in Table 1. A summary of the targeted types of tissue to be collected per species is also presented in Table 1. Several species will be processed on a whole-body basis; however, some species will be separated into components (e.g., fish fillet and carcass and blue crab tissue components). The decision to analyze fish species as skin-on or skinless fillets is based on USEPA guidance and typical consumption practices (USEPA 2000). Scaled fish (including perch and largemouth bass) will be analyzed as skin-on fillets after removing scales. Scaleless fish (including catfish, brown bullhead, and eel) will be analyzed as skinless fillets.

The actual number of fish or decapods that will make up each sample will be determined based on the sizes and numbers of the organisms that are collected in the field. However, a balanced sample design is sought to optimize the statistical power of the tissue datasets. For all composites, multiple individuals per sample are targeted to meet the anticipated minimum sample mass requirements (150 g pre-homogenization and 130 g post-homogenization). Based on historical sampling, several individuals may be sufficient for most species to achieve sufficient tissue mass for analytical and QC requirements; however, for decapods and benthic omnivore fish (mummichog and darter or killifish), it is anticipated that a larger number of individuals per composite will be required. It should also be noted that additional tissue mass will be needed for certain samples to accommodate USEPA split sample objectives.

Once the individual and composite sampling analysis memorandum is approved by USEPA, sample homogenates will be prepared in the laboratory based on species-specific sample types as presented in Table 1. For whole-body, fillet, carcass, soft, or edible muscle tissue composite samples, the sample identification scheme is as follows (also described on QAPP Worksheet No. 27):

- The first five characters will be “LPR” to identify the project area (Lower Passaic River) and the reach (i.e., 1 to 8) and, if relevant, target area (e.g., A, B, C).
- The next set of alphanumeric characters will identify the fish or decapod crustacean species by its scientific (Latin binomial) name and tissue type. Tissue types will be one of the following codes: “WB” for whole-body tissue, “FT” for fillet tissue, “CT” for carcass tissue, “ST” for (all) soft tissue, “MH” for muscle/hepatopancreas combined tissue, “HT” for hepatopancreas tissue (if included separate from soft tissue), or “MT” for (edible) muscle tissue.
- The next set of alphanumeric characters will be “Comp” to identify the composite sample, followed by a two-digit sequential number within the sampling area.
- For example, the first largemouth bass (*Micropterus salmoides*) fillet tissue composite sample from sampling area 2 would be identified as “LPR2-MSFT-Comp01.”

The general sampling identifiers for each sample is presented in Table 1.

All relevant information for each composite and individual sample will be recorded electronically on the Composite Sample Form (Attachment F) and included as an appendix in the final data report.

Table 1. Summary of compositing per sample type for fish and decapod crustacean tissue collection

Feeding Guild ^a	Target Species	Zone ^b	Target Length (in.) ^c	Average Individual Length (in.) ^d	Average Individual Weight (g) ^d	Type of Sample	No. of Samples per Zone	Total No. of Analytical Samples	Estimated No. of Individuals per Sample ^e	Composite Sample Identification ^f	Alpha SOP Section Reference (Attachment O)
Benthic omnivore-forage fish	mummichog	estuarine	≤ 5	2.6 (67 mm; male), 2.8 (71 mm; female)	5 (male), 6 (female)	whole body	39	39	30	LPR“XX”-FWWB-Comp“XX”	14.2 (fish tissue preparation)
	darer or killifish species	fresh-water	≤ 5	ND	ND	whole body	42	42	30	LPR“XX”-“XX”WB-Comp“XX”	14.2 (fish tissue preparation)
Invertivore	white perch	estuarine	≥ 8 ^g	8.1 (206 mm)	161	skin-on fillet (scales removed)	24	48	3	LPR“X”-MAFT-Comp“XX”	14.2 (fish tissue preparation); 14.4 (fillet)
						carcass ^h	24			LPR“X”-MACT-Comp“XX”	14.2 (fish tissue preparation)
	channel catfish or brown bullhead	fresh-water	≥ 12 or ≥ 8 ^g	7.6 (193 mm) (catfish); 11 (279 mm) (bullhead)	78 (catfish); 321 (bullhead)	skinless fillet	26	52	6 (catfish) 2 (bullhead)	LPR“X”-“XX”FT-Comp“XX”	14.2 (fish tissue preparation); 14.3 (removal of skin); 14.4 (fillet)
						carcass with skin ^h	262			LPR“X”-“XX”CT-Comp“XX”	14.2 (fish tissue preparation)

Feeding Guild ^a	Target Species	Zone ^b	Target Length (in.) ^c	Average Individual Length (in.) ^d	Average Individual Weight (g) ^d	Type of Sample	No. of Samples per Zone	Total No. of Analytical Samples	Estimated No. of Individuals per Sample ^e	Composite Sample Identification ^f	Alpha SOP Section Reference (Attachment O)
Carnivore/ piscivore	American eel	estuarine	≥ 12	14 (366 mm)	120	skinless fillet	24	48	4	LPR“X”-ARFT-Comp“XX”	14.2 (fish tissue preparation); 14.4 (fillet)
						carcass with skin ^h	24			LPR“X”-ARCT-Comp“XX”	14.2 (fish tissue preparation)
	largemouth bass	fresh-water	≥ 12	ND	ND	skin-on fillet (scales removed)	26	52	2	LPR“X”-MSFT-Comp“XX”	14.2 (fish tissue preparation); 14.4 (fillet)
						carcass ^h	26			LPR“X”-MSCT-Comp“XX”	14.2 (fish tissue preparation)

Feeding Guild ^a	Target Species	Zone ^b	Target Length (in.) ^c	Average Individual Length (in.) ^d	Average Individual Weight (g) ^d	Type of Sample	No. of Samples per Zone	Total No. of Analytical Samples	Estimated No. of Individuals per Sample ^e	Composite Sample Identification ^f	Alpha SOP Section Reference (Attachment O)
Epibenthic omnivore	blue crab	estuarine	≥ 3 – 4.5 ⁱ	4.7 (119 mm)	103	muscle/ hepatopancreas combined ^j	24	63	8	LPR“XX”- CSMH- Comp“XX”	14.7 (crab tissue preparation); 14.7.6 (crab tissue); 14.7.7 (crab hepatopancreas tissue preparation)
						carcass ^j	24		9	LPR“XX”- MSCT- Comp“XX”	14.7 (crab tissue preparation); 14.7.6 (crab tissue)
						muscle only ^j	12		12	LPR“XX”- CSMT- Comp“XX”	14.7 (crab tissue preparation); 14.7.6 (crab tissue)
						hepatopancreas only ^j	3		28	LPR“XX”- CSHT- Comp“XX”	14.7.7 (crab hepatopancreas tissue preparation)
	blue crab ^k	fresh-water	≥ 3 – 4.5 ⁱ	4.7 (119 mm)	103	muscle/ hepatopancreas combined ^j	17	30	8	LPR“XX”- CSMH- Comp“XX”	14.7 (crab tissue preparation); 14.7.6 (crab tissue); 14.7.7 (crab hepatopancreas tissue preparation)
						muscle only ^j	9		12	LPR“XX”- CSMT- Comp“XX”	14.7 (crab tissue preparation); 14.7.6 (crab tissue)
						hepatopancreas only ^j	4		28	LPR“XX”- CSHT- Comp“XX”	14.7.7 (crab hepatopancreas tissue preparation)
	crayfish	fresh-water	≥2	ND	ND	whole body	27	27	38	LPR“XX”- “XX”WB- Comp“XX”	14.10 (macroinvertebrate preparation)

^a Target species are organized according feeding guild designated for USERA. The target demersal (bottom-dwelling) species for HHRA are blue crab (estuarine), American eel (estuarine) and channel catfish/brown bullhead (freshwater). The target pelagic species for HHRA are white perch (estuarine) and largemouth bass (freshwater).

- ^b Zones represent the estuarine and freshwater habitats within the LPRSA.
- ^c Target sizes were selected to be representative of potential prey size for those species that are only relevant to the ERA (i.e., benthic omnivore forage fish and crayfish) and representative of the minimum legal catch sizes (NJDEP 2009) and expected size preference for white perch and brown bullhead, which do not have a minimum legal catch size, for those species that are relevant to both the ERA and the HHRA (e.g., invertivore, piscivore, and blue crab). During field sampling, however, all individuals will be retained regardless of target size in the event that sufficient numbers of individuals that meet the target size requirements cannot be obtained.
- ^d Average weights and body lengths based on Tierra Solutions, PRSA Fish Community Data (dated 09/18/02) (Tierra Solutions 2002c).
- ^e A minimum target pre-homogenization analytical mass of 150 g (130 g post-homogenization) is required for each sample. Based on the estimated mass of targeted species, all samples will likely be composite samples, inasmuch as sufficient mass is not expected from individual organisms to meet analytical mass requirements. This minimum target mass does not include additional mass required for QC or split samples. The sizes of all fish and decapod crustaceans collected for each sample will be evaluated prior to compositing (if necessary), and individuals included in a given composite will be of similar size so that the smallest individual in a composite is no less than 75% of the length of the largest individual (USEPA 2000b). This target size requirement will be evaluated during the sampling event in conjunction with USEPA to determine if the range of individual sizes included in a composite needs to be increased or decreased to accommodate the level of effort of the sampling event. When possible, composites will be composed of approximately equal portions of each gender. The estimated number of individuals required to obtain the minimum target tissue mass was calculated using regression equations, (if available), extracted from data collected under previous sampling efforts, or from other available information, and assumes that 30% of a fish is available for fillet. Available regression equations for estimating body weight (BW) based on body length (BL) (from BBL memo to Mark Harris and Cliff Firstenburg, March 7, 2001, except where noted):
- Mummichog BW = $10^{-2.06 + 3.27 \log BL}$
- Channel catfish BW = $10^{3.256 \times \log BL - 2.795}$
- American eel BW = $10^{2.93 \times \log BL - 5.55}$
- Blue crab:
- a) Whole BW = $1.95 \times BL - 188.76$
- b) Muscle weight = $1.36 \times BL - 143.51$
- c) Hepatopancreas weight = $0.092 \times BL - 5.23$
- d) Muscle + hepatopancreas weight: sum of muscle and hepatopancreas weights
- b) Carcass weight: whole BW – muscle + hepatopancreas weight
- ^f The six characters following “LPR” identify the two-digit code for the reach where the sample was located in the LPRSA, the two-digit code for the scientific (Latin binomial) name of the species, and the two-digit code for the tissue type. The composite number (followed by “comp” in the above table) will be assigned sequentially.
- ^g There is no legal minimum catch size designated for white perch or brown bullhead. Therefore, this target size of 8 in. is based on an assumed meaningful target size for human consumption and the results of the 2000-2001 creel/angler survey (i.e., 44 white perch ranging in size from 4 to 10 in. were reportedly caught and kept by LPR anglers) (Desvousges et al. 2001).
- ^h Carcass tissue will be composed of the remaining (non-fillet) portion. Tissue type concentrations will be combined mathematically (proportionally to their average weights in each species) to calculate whole-body concentrations.
- ⁱ Target size is dependent on “shed stage” of blue crab, for which the legal minimum is 3 in. for shedders, 3.5 in. for softshell, and 4.5 in. for hardshell (<http://www.scottsbtt.com/fishids/regsrecs/regsNJ.htm>).
- ^j Blue crab muscle/hepatopancreas combined and muscle-only tissue samples are to satisfy HHRA data needs; carcass (i.e., non-edible soft tissue) and muscle/hepatopancreas combined tissue samples will be combined mathematically to yield all soft tissue concentrations for the ERA. Because crayfish is the target ERA species for the freshwater zone, carcass tissue samples are not required for this zone. The HHRA will use data from combined blue crab

muscle/hepatopancreas samples as the basis for quantitatively evaluating the RME of individuals under current and future exposure scenarios for both cancer and non-cancer health effects, following USEPA Superfund guidance, guidelines, and policies. Risks associated with the consumption of hepatopancreas-only and muscle-only tissue will be discussed qualitatively in the uncertainty section of the HHRA.

^k Blue crab samples may be collected from the freshwater zone if sufficient blue crab are encountered in the freshwater zone.

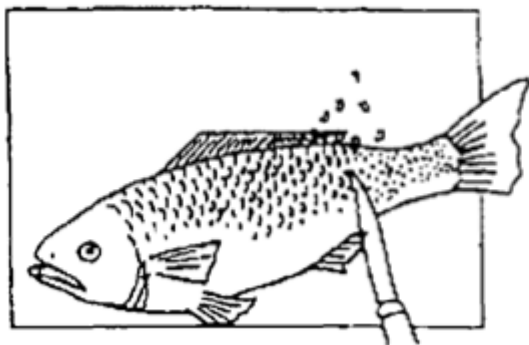
RM – river mile

ND – no data

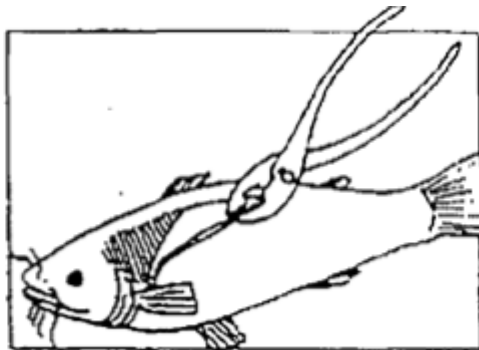
III. Additional details on fillet sample preparation

The laboratory procedure for tissue preparation and homogenization is presented in the Attachment O prepared by Alpha Analytical Laboratory (Tissue Preparation and Homogenization SOP, OP-003, Revision 3, April 29, 2010). Fish fillet preparation procedures are presented in Figure 1 (Malcolm Pirnie et al. 2006). White perch and largemouth bass fillets will be prepared with skin remaining on but scales removed.

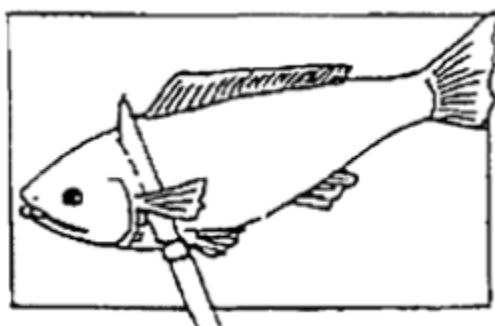
Figure 2: Fish Fillet Preparation Procedures



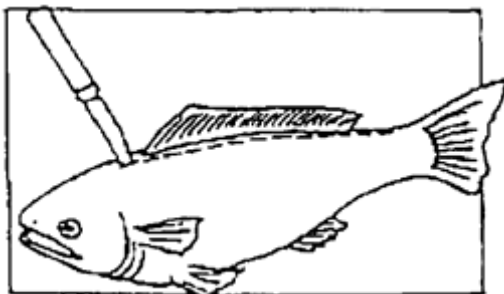
1. Removing Fish Scales: Rinse fish with deionized water. Remove the scales (by scraping with the edge of a knife) and rinse the fish with deionized water. Scales are not included in the carcass tissue.



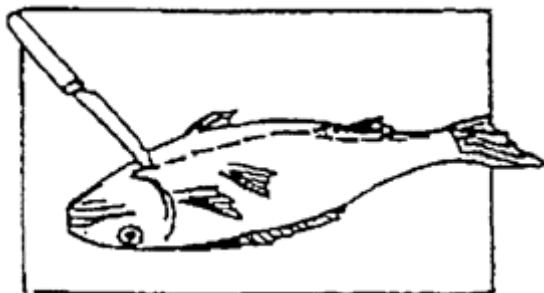
1b. Removing Skin on Scaleless Fish: Rinse fish with deionized water. Cut the skin behind the gill cover. Using a knife blade, pliers or other cleaned utensils, pull the skin off towards the tail of the fish. Skin can be removed after filleting if necessary. Note: This step applies only to catfish and other scaleless fish.



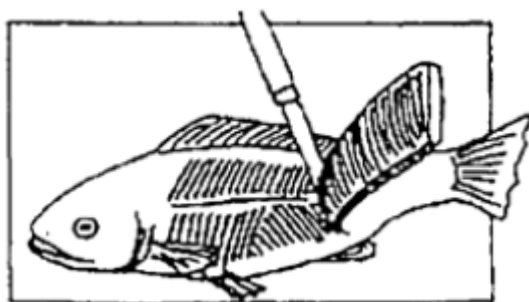
2. To fillet the fish, make a cut behind the entire length of the gill cover, cutting through the skin and flesh to the bone.



3. Make a shallow cut through the skin (on either side of the dorsal fin) from the top of the head to the base of the tail.



4. Make a shallow cut along the belly from the base of the pectoral fin to the tail. A single cut is made from behind the gill to the anus and then a cut is made on both sides of the anal fin. Do not cut into the gut cavity as this may contaminate fillet tissue.

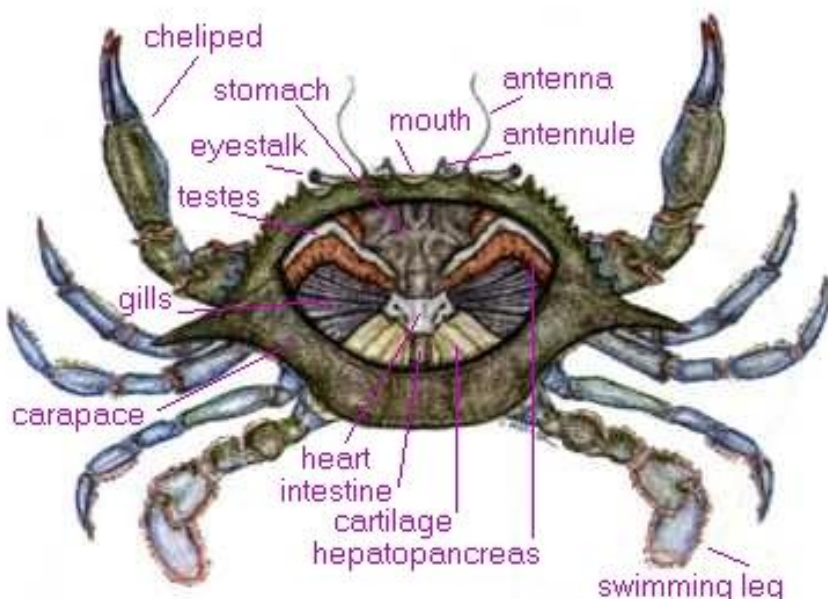


5. Remove the fillet.

IV. Additional details on blue crab sample preparation

The laboratory procedure for blue crab tissue preparation and homogenization is presented in the Attachment O prepared by Alpha Analytical Laboratory (Section 10.3.6.2 of Attachment O). Crab will be separated into several tissue type samples (Table 1). The anatomy of the blue crab is presented in Figure 3.

Figure 3. Anatomy of blue crab



Graphic courtesy of Virginia Sea Grant

Partially thaw the crab samples by removing the crab samples from the freezer and placing them in a refrigerator for approximately 7 hours prior to processing. This time can be adjusted based on the size of the individual crabs in the composite (i.e., longer time for larger than average specimens, shorter time for smaller than average specimens). Once removed from refrigerated storage, crabs can be placed on ice as needed to slow the thawing process.

Crabs will be dissected into muscle/hepatopancreas, muscle-only, hepatopancreas-only, and carcass tissues according to the USEPA approved compositing scheme. The crab specimen mass (whole body), specimen tissue mass, post-homogenization composite mass, and the mass partitioned into each container for analysis will be determined. The following protocols shall be implemented, as practicable, for preparing crab tissue samples.

1. Prior to removal of tissues, rinse each crab with de-ionized water to remove any attached sediment. In addition, examine each crab for damage to the carapace. Notify Windward if crabs exhibit extensive damage (i.e., cracks or holes). Once dry, weigh the individual crabs and record the weight on the processing form. Record any damage to the crab. Weigh the clean glass container that will be used to collect the composite tissue (composite jar). Record the weight of the composite jar and tare the balance.
2. Break off the chelipeds and legs at the carapace and place claws and legs aside for tissue removal. Using decontaminated stainless steel scissors or snips, cut off the carapace to expose the internal tissue.
3. Using a clean, decontaminated stainless steel tool, remove as much of the hepatopancreas as possible. If processing muscle-only tissue, discard the

hepatopancreas (unless paired with a hepatopancreas-only composite). If processing hepatopancreas-only tissue, place the hepatopancreas into the composite jar and record the weight of the hepatopancreas and proceed to step 6. If processing the hepatopancreas/muscle tissue, place the hepatopancreas into the composite jar and continue to add the muscle tissue to the composite jar as described below in step 4.

4. Following removal of the hepatopancreas, remove the muscle tissue from the thoracic cavity, claws, legs, and abdomen portions of the crab using a clean, decontaminated stainless steel tool. Place the muscle tissue in the glass composite jar. The muscle tissue can be removed from the claws by cutting the cheliped open and scraping or pulling out all muscle tissue. The muscle tissue can be removed from the legs by cutting the legs and scraping or pulling out all of the tissue. Place the muscle tissue into the composite jar (with hepatopancreas for the hepatopancreas/muscle tissue) and record the weight of the specimen tissue.
5. Carcass composites are always paired with the muscle/hepatopancreas tissue composites (i.e. same crabs are used for both). For the carcass composites, weigh another clean glass composite jar. Record the weight and tare the balance. Remove all remaining soft-tissue from the crab, including the gills, stomach, heart, intestines, cartilage, testes, eggs, and the soft part of the undercarriage where the stomach is attached. The carcass does NOT include the carapace (or soft-shell if molting), cheliped shells, or leg shells. Using a clean, decontaminated stainless steel knife or equivalent, cut the carcass tissue into small pieces. Place the carcass tissue in the composite jar and record the weight of the tissue.
6. Repeat the above steps for each crab in the composite. For a given composite, all composite tissue should be placed into one clean glass composite jar to minimize sample loss. After the final component of the composite is weighed the balance should be tared so that the weight of the post-homogenization mass can be determined.
7. Homogenize the tissue samples in the glass composite jar using homogenization equipment (e.g., a Tissuemizer with stainless steel blade).
8. Weigh the composite jar containing the homogenized tissue and subtract the tare weight of the composite jar to calculate the homogenized composite mass. Record the homogenized composite mass on the sample processing form. Take a photograph of the homogenized composite.
9. Distribute the homogenized composite tissue into clean glass containers for each laboratory and record the weight partitioned into each container. Contact Windward if the post-homogenization minimum mass requirement is not met for the composite and freeze the labeled composite until further instruction from Windward.
10. Place each container in a plastic bag and ensure that either the sample jar or bag is appropriately labeled. Place the jar in the freezer until ready for shipment/courier pick-up.

V. Additional details on preparing tissues for shipment

1. Wrap each bagged sample jar in bubble wrap and secure with tape or place sample jar in a bubble bag and seal.
2. Fill temperature blank with water and freeze. Once frozen, place the temperature blank container inside the cooler among sample jars.
3. Complete the appropriate chain-of-custody form for each sample container. Place chain-of-custody in a small plastic bag inside the cooler.
4. Pack the samples in a cooler containing wet and dry ice. Ensure that the dry ice does not physically touch the sample jars. Ensure the appropriate labels are applied to the cooler for the dry ice documentation.
5. Sign, date, and affix custody seals to the top of the cooler. Send the cooler via overnight delivery (avoid sending on Friday for Saturday delivery whenever possible).

VI. References

Desvousges WH, Kinnell JC, Lievense KS, Keohane EA. 2001. Passaic River Study Area creel/angler survey: data report. Triangle Economic Research, Durham, NC.

Malcolm Pirnie, Earth Tech, Battelle. 2006. Lower Passaic River Restoration Project. Draft field sampling plan. Volume 2. Prepared for US Environmental Protection Agency, US Army Corps of Engineers, and New Jersey Department of Transportation/Office of Maritime Resources. Malcolm Pirnie, Inc., White Plains, NY; Earth Tech, Inc., Bloomfield, NJ; Battelle, Stony Brook, NY.

NJDEP. 2009. Division of Fish & Wildlife regulations: New Jersey Permanent Statute Title 23 - fish and game, wild birds and animals [online]. New Jersey Department of Environmental Protection, Trenton, NJ. Updated January 21, 2009. [Cited March 9 2009.] Available from: <http://www.state.nj.us/dep/fgw/njregs.htm#fishing>.

Tierra Solutions. 2002. Passaic River Study Area fish community data. September 18, 2002. Tierra Solutions, Inc., Newark, NJ.

USEPA. 2000. Guidance for assessing chemical contaminant data for use in fish advisories. Volume 1: Fish sampling and analysis. Third ed. EPA 823-B-00-007. US Environmental Protection Agency, Washington, DC.

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Protocol Modification Form: Fish/Decapod QAPP No. 11

Project Name and Number: Passaic RI 09.58.02.31

Material to be Sampled: Tissue

Measurement Parameter: Processing and preparation of tissue samples for analysis.

Standard Procedure for Field Collection & Laboratory Analysis (cite reference):

Attachment O of the Fish/Decapod QAPP (Alpha Analytical's Tissue Preparation and Homogenization SOP, OP-003, Revision 0.0, 4/25/92).

Reason for Change in Field Procedure or Analysis Variation:

Revisions to Attachment O of the Fish/Decapod were requested by The Louis Berger Group, Inc. as a result of their March 10, 2010 crab processing audit of Alpha Analytical. The revised Attachment O (Alpha Analytical's Tissue Preparation and Homogenization SOP, OP-003, Revision 3, 4/29/10) is attached to this protocol modification form.

Variation from Field or Analytical Procedure:

Modifications were made to Attachment O to accurately describe the crab and fish tissue processing method. Page 1 of the revised Attachment O (Alpha Analytical's Tissue Preparation and Homogenization SOP, OP-003, Revision 3, 4/29/10) describes the revisions made to the SOP. The SOP was revised as follows:

1. Section 2 was revised to include carcass as a type of fish tissue.
2. Pliers, electric grinder, glass weighing dish/jar, camera, ruler, powder-free latex gloves, paper towels, and a description of the dissection tools were added to Section 7.
3. The procedure to generate a rinsate blank was added to Section 9.1.1.
4. Generator probes were added to the list of equipment that should be washed in Section 10.1.1.
5. The statement that described the cleaning procedure for organic analyses only was removed from Section 10.1.2.
6. Section 10.3.4 was revised to include project-specific weight determinations, photo of fish with ruler, and clarification of tools used to skin fish. The description of using aluminum foil/plastic wrap to cover the balance was removed from Section 10.3.4.
7. Section 10.3.4.5 was revised to include clarification of homogenization for whole body, fillets, and carcass tissue.
8. The text "Teflon covered spatula" was removed from Sections 10.3.5.6, 10.3.6.1.3, and 10.3.7.2.
9. Text was added to Section 10.3.6.2.1 to remove and discard eggs from female crabs (note that Addendum to Attachment O overrides this procedure to include eggs in carcass tissue).
10. Text was added to Section 10.3.9.3.1 that details the procedure to remove eel skin.
11. Method Performance Section 13.1 and 13.2 were modified to indicate that they are not applicable.

Special Equipment, Materials or Personnel Required:

All necessary equipment is summarized in Section 7 of the revised Attachment O (Revision 3, dated 4/29/10).

Initiator's Name: DQDL. Date: 4/29/10

Project Manager: Karin Sohn Date: 4/29/10

QA Manager: Jad Hershler Date: 4/29/10

USEPA Authority: _____ Date: _____

Tissue Preparation and Homogenization

References: This standard operating procedure (SOP) is a performance-based method. This SOP describes the procedure as developed by Alpha Analytical.

Uncontrolled Document

Copy No.: _____

Prepared By:

Name: Normand Laurianno Position: Extractions/ Forensics Analytical Team Leader

Signature:  Date: 04/29/2010

Authorized By:

Name: Leonard Pitts Position: Laboratory/Technical Director

Signature:  Date: 4/29/10

ISSUE AMENDMENTS

Changes since last issue:

- Section 2: Add of carcass as type of fish tissue.
- Section 7: Addition of sections for pliers, electric grinder, glass weighing dish, camera, ruler, latex gloves – powder free, paper towels.
- Section 7.3: Modification to include all dissection tools and utensils which may be utilized in processing.
- Section 9.1.1: Addition of procedure for generation of Rinseate Blanks.
- Section 10.1.1: Addition of generator probes.
- Section 10.1.2: Removal of 'organic analysis only' statement.
- Section 10.1.3: Changed to Section 10.1.2.1.
- Section 10.3.4: Addition option for project-specific sample weight determinations; removal of use of aluminum foil/plastic wrap to cover balance; addition of photo of fish with ruler; clarification of tools used to skin fish.
- Section 10.3.4.5: Clarification of homogenization for whole body, fillets and carcass.
- Sections 10.3.5.6; 10.3.6.1.3; & 10.3.7.2: Remove "Teflon Covered Spatula".
- Section 10.3.6.2.1: Add "Remove and discard eggs from female crabs".
- Section 10.3.9.3.1: Addition of procedure for removal of skin for eels.
- Sections 13.1 and 13.2: Modified to not applicable.

Tissue Preparation and Homogenization

References: This standard operating procedure (SOP) is a performance-based method. This SOP describes the procedure as developed by Alpha Analytical.

1. Scope and Application

Matrices: This method is applicable to the preparation and homogenization of plant and animal tissue including: mammals (mice or shrew etc.), fish (whole body and fillets), mollusks (mussels or clams, etc.), crustaceans (lobster or shrimp, etc.), reptiles and amphibians (frogs or turtles, etc.) macro invertebrates (benthic worms, eels, insects and other biota), and vegetation (coastal and wetland grasses)

Definitions: Refer to Alpha Analytical Quality Manual.

This preparation and homogenization procedure may be used prior to the extraction or digestion of the matrices listed above, for the ultimate detection of organic and inorganic analytes. Because this procedure is performance based, it should only be used for compounds where studies have assessed the precision, accuracy, and sensitivity of the technique relative to the project specific goals.

This method is intended to describe the preparation and homogenization procedures to be followed prior to the extraction, digestion and/or clean up of sample extracts or digestates. This procedure uses a variety of cutting and grinding equipment for size reduction, compositing and homogenization. See Section 7 for Equipment and Materials. This method is applicable to the matrices described above. The final determinative analytical methods and lists of potential target compounds are noted in the SOPs referenced below. Applicable extraction, digestion and cleanup methods include:

- *Microwave Assisted Acid Digestion of Sediments, Soils, Tissues and Waters (MP-003),*
- *Gel Permeation Chromatography (OP-006),*
- *Sulfuric Acid Cleanup - Method 3665A (OP-010),*
- *Microscale Solvent Extraction (OP-016)*
- *Alumina Column Cleanup (OP-009).*

Other applicable methods, however not included by ALPHA ANALYTICAL SOP reference, are Method 3546 - Microwave Extraction of Organic Compounds and Automated Silica Gel Cleanup for Organic Compounds. Note: *Sample cleanup does not apply to digestates of inorganic samples for metals analysis.*

Data derived from the analysis of tissue samples is generally used to determine if human health, and/or ecological risk criteria have been exceeded.

The data report packages present the documentation of any method modification related to the samples tested. Depending upon the nature of the modification and the extent of intended use, the laboratory may be required to demonstrate that the modifications will produce equivalent results for the matrix. Approval of all method modifications is by one or more of the following laboratory personnel before performing the modification: Area Supervisor, Department Supervisor, Laboratory Director, or Quality Assurance Officer.

This method is restricted to use by or under the supervision of experienced analysts.

2. Summary of Method

This method describes the tissue processing and homogenization procedures to be used prior to the extraction/digestion and analysis of the sample. Samples are best processed when partially frozen. Samples may be re-frozen after processing pending extraction or digestion.

Fish tissue samples (whole bodies, carcass or fillets) are weighed and the weights are recorded following project specifications. Measurements may be taken as needed depending upon the project specifications. The fish may be processed with the skin on or off, depending upon the project specifications. If fillets are to be removed and processed separately, this is generally done after the removal of the skin, however fillets can be processed with the skin on if requested. If compositing is required, the identified samples for composite are filleted or skinned prior to compositing homogenization. The carcass of the fish (after removal of the fillet) may be maintained for separate homogenization and analysis if requested.

Mammals such as mice, shrew or other rodents, must be prepared in a glove box due to the potential health hazards associated with mammal tissue. All project specific sample preparation (weighing, skinning, compositing and homogenization) is performed in the glove box. Waste from the processing must be containerized and treated with bleach before disposal. Waste from the processing must be containerized before disposal. The outside surfaces of the sample containers must be disinfected before removal from the glove box.

Mollusks, crustaceans and other like invertebrates are measured and weighed prior to processing. Mollusks must be removed from their shells before processing. Due to the low weight of a single mollusk, crustacean or invertebrate, these sample types are generally composited with others of the same species and/or sampling area prior to homogenization. Gender determination may need to be performed with larger crustaceans such as lobsters. This is done prior to any processing and recorded. Additionally, lobsters are usually dissected, and the edible meat (tail and claw) is removed for homogenization. Certain internal organs such as the hepatopancreas may need to be processed separately. If crabs are being processed, the legs, claws and body cavity are generally homogenized together.

Reptiles and amphibians are generally processed as whole body samples. Depending upon the size, the specimen may need to be cut into small pieces and processed in part, then re-combined as a single sample. Due to the thickness of the skin of most reptiles, such as frogs, it is recommended that these be processed without the skin. If the skin must be processed, ensure that the grinder or processor blades are sharpened before use. The blades may need to be re-sharpened between every few samples as needed. Turtles must be removed from the shell prior to processing by digging out the head and legs, and as much of the body as feasible.

Macro invertebrates such as worms, eels, insects or benthic biota are generally processed as whole body samples. Depending upon the size, the specimen may need to be cut into small pieces and processed in part, then re-combined as a single sample. Due to the low weight of a single invertebrate, these sample types are generally composited with others of the same species and/or sampling area prior to homogenization.

Plants are rinsed prior to processing to remove soil, silt, small insects or other debris. Depending upon the size of the plant and the leaves, the sample may be processed mechanically, or may have to be cut into small pieces by hand. Plants can be processed either wet or dry, depending upon project specifications.

After tissue processing, organic samples will be extracted and the extracts cleaned if needed, then analyzed by the determinative analytical procedure. Inorganic digestates do not require further clean up and will only undergo analysis by the determinative analytical procedure.

2.1 Method Modifications from Reference

None.

3. Reporting Limits

Not applicable to this method. Refer to the analytical method SOPs.

4. Interferences

Solvents, reagents, processing equipment and glassware may introduce interferences. These must be demonstrated to be free of interferences by the analysis of a method blank. See the ALPHA ANALYTICAL SOP *Reagent, Solvent and Standard Control* (G-008) and *Laboratory Glassware Cleaning* (G-002), for additional details.

Field Blanks are recommended to ensure that the field sample packing materials are not a potential source of contamination. This can be done by pouring contaminate free water over the sample collection material and collecting the water in an appropriate container with preservative as needed (*i.e.*, 1L glass amber bottle for organic and a 500mL polyethylene bottle with 1:1 HNO₃ preservative for metals).

Equipment used to process samples for *organic* analyses should be made of stainless steel, Teflon, ceramic, or PTFE. Tissue should be removed with clean, high-quality, corrosion-resistant stainless steel, ceramic or titanium instruments, knives and blades. Homogenates must be stored in borosilicate glass, quartz, or PTFE containers with PTFE-lined lids.

Many interferences can be removed by sample cleanup. The organic cleanup methods performed by ALPHA ANALYTICAL include those listed in Section 1. Only appropriate cleanup techniques must be performed based on the suspected interference and the compounds of interest. For example, sulfuric acid cleanup is not applicable to samples requiring pesticide analysis because this rigorous cleanup will destroy the majority of pesticides.

Soapy residue may result in basic conditions on glassware and may cause degradation of the pesticides Aldrin and Heptachlor, some organophosphorous pesticides, and can cause metals instrument interferences. All glassware must be rinsed thoroughly with deionized water and solvents/nitric acid to remove soapy residue. See the ALPHA ANALYTICAL SOP (G-002) *Laboratory Glassware Cleaning*, for additional details.

5. Health and Safety

The toxicity or carcinogenicity of each reagent and standard used in this method is not fully established; however, each chemical compound should be treated as a potential health hazard. From this viewpoint, exposure to these chemicals must be reduced to the lowest possible level by whatever means available. A reference file of material safety data sheets is available to all personnel involved in the chemical analysis. Additional references to laboratory safety are available in the Chemical Hygiene Plan.

All personnel handling environmental samples known to contain or to have been in contact with municipal waste must follow safety practices for handling known disease causative agents.

6. Sample Collection, Preservation, Shipping and Handling

6.1 Sample Collection

As guidance, a minimum of 50 grams of sample must be collected for organic analyses, and 5 grams for metals analyses, in a glass jar with a Teflon or PTFE-lined screw cap. The amount of sample needed, will depend upon the project DQOs, such as reporting limits and the need for MS/MSD and/or duplicate analyses. Extra sample must be collected, if possible, to allow the laboratory adequate sample volume in case re-preparation and re-analysis is needed. Large

whole individual fish, fillets, or vegetation may be wrapped in plastic or aluminum foil depending upon the requested analyses. (See Section 4 or additional details about allowable materials). Large crustaceans, reptiles or amphibians may be individually packed in well-labeled Styrofoam coolers.

6.2 Sample Preservation

It is recommended that samples are preserved by freezing them with dry ice at $\leq -20^{\circ}\text{C}$. If samples are not shipped frozen, they will be stored in freezers at Alpha Analytical upon arrival, and until processing. The samples must remain frozen and maintained at $\leq -20^{\circ}\text{C} \pm 10^{\circ}\text{C}$ until processing. After processing, individual sample homogenates must also be stored at $\leq -20^{\circ}\text{C} \pm 10^{\circ}\text{C}$ until extraction/digestion and analysis.

6.3 Sample Shipping

Refer to Section 6.2.

6.4 Sample Handling

Sample processing and extraction/digestion hold times are suspended by freezing the sample. Hold time monitoring is resumed when samples are removed from freezers for processing and then returned to freezers pending extraction/digestion. Movement of samples into and out of freezers is tracked through LIMS. The organic hold time is 14 days from sample collection to extraction, and 40 days from extraction to analysis. The metals hold time is six months from sample collection to digestion and analysis. If mercury is to be determined, the hold time is 28 days from sample collection to digestion and analysis.

7. Equipment and Supplies

7.1 Cutting board: Made of either glass or Teflon.

7.2 Food processor: Black & Decker with titanium cutting blade (small).

7.3 Dissection Tools: Tools may include the following utensils: knives/blades (ceramic, stainless steel, or titanium), stainless steel picks, spatulas (stainless steel or Teflon-coated stainless steel), stainless steel scissors/snips, stainless steel tweezers. (Refer to Section 4.0 for interferences and/or contamination associated with different materials.)

7.4 Pliers: Stainless Steel

7.5 Balances: Analytical Balance with precision to 0.0001g; Top loading balance with precision to 0.01g; Top loading balance with precision to 0.2g.

7.6 Grinding unit: Omni-GLH, electric, custom fitted with stainless steel or titanium interior saw tooth probes (10mm, 20mm, 45mm), or equivalent.

7.7 Tissuemizer: Janke & Kunke IKA - Labortechnik Ultra Turrax T25, stainless steel

7.8 Grinder: LEM electric meat grinder, stainless steel (or equivalent)

7.9 Multi-hazard glove box: Labconco

7.10 Bench liner material

7.11 Latex Gloves – Powder Free

7.12 Glass weighing dish/jar, wax paper, aluminum foil, plastic wrap.

7.13 Camera

7.14 Ruler

7.15 Paper towels: Kim Wipes

8. Reagents and Standards

Use reagent grade or trace metals grade chemicals for all reagents. Deionized (DI) water or reagent water is ASTM Type II laboratory reagent grade water. Other grades may be used.

All reagents are stored at room temperature in flammable cabinets, unless otherwise noted. All reagents expire upon manufacturer's expiration date or one year from date of opening, whichever is sooner.

8.1 Methylene Chloride: ACS approved, Pesticide grade, see ALPHA ANALYTICAL SOP *Reagent, Solvent and Standard Control* (G-008) for additional details regarding solvent purity.

8.2 Methanol: ACS approved, Purge & Trap grade, see ALPHA ANALYTICAL SOP *Reagent, Solvent and Standard Control* (G-008) for additional details regarding solvent purity.

8.3 Hexane: ACS approved, Pesticide grade, see ALPHA ANALYTICAL SOP *Reagent, Solvent and Standard Control* (G-008) for additional details regarding solvent purity.

8.4 Acetone: ACS approved, HPLC grade, see ALPHA ANALYTICAL SOP *Reagent, Solvent and Standard Control* (G-008) for additional details regarding solvent purity.

8.5 Nitric acid 50% (1:1): Add 500 mL concentrated HNO₃ to 400 mL of reagent water and dilute to 1 liter in an appropriate beaker or flask. For 25% HNO₃ solution: add 250 mL of concentrated HNO₃ to 400 mL of reagent water and dilute to 1 liter in an appropriate beaker or flask. Store in a corrosion-resistant cabinet.

8.6 10% Bleach solution: Add 100 mL of commercial bleach to 500 mL of reagent water and dilute to 1 liter in an appropriate beaker or flask. Prepare fresh each day of use.

8.7 Alconox cleaning solution. No special storage requirements. No expiration requirements.

9. Quality Control

The laboratory must maintain records to document the quality of data that is generated. Ongoing data quality checks are compared with established performance criteria to determine if the results of analyses meet the performance characteristics of the method.

The following quality control samples may or may not be included with each processing batch. If not included in the tissue processing steps, they must be included in the extraction/digestion batches that follow processing, or as needed, depending upon project specifications.

9.1 Blank(s)

9.1.1 Rinseate Blank/Equipment Blank or Process Blank

Rinseate/Equipment or Process blanks are generated using contaminate-free reagent (DI) water to rinse all processing equipment after completion of the cleaning procedure (see Section 10.1). The volume of water used will be based on project-specific volume requirements for requested analyses.

All processing equipment is rinsed with pre-determined volume of reagent water (DI) into a collection vessel. All rinse water is transferred from collection vessels to larger glass carboy.

Homogenizer/Generator probes are immersed in a pre-determined volume of DI water. The Homogenizing Unit will be turned on and the probe will process the DI water for a pre-determined time, based on project specifications. The DI water will then be transferred into a larger glass carboy and combined with DI from other processing equipment.

After all rinseates are collected into the glass carboy (or appropriate container), mix the DI water using a large glass stirring rod or by swirling the DI water. Transfer the water into the appropriate pre-prepared sample containers.

9.1.2 Method Blank

Not applicable to this method. Refer to analytical SOPs.

9.2 Laboratory Control Sample (LCS)

Not applicable to this method. Refer to analytical SOPs

9.3 Initial Calibration Verification (ICV)

Not applicable to this method. Refer to analytical SOPs.

9.4 Continuing Calibration Verification (CCV)

Not applicable to this method. Refer to analytical SOPs.

9.5 Matrix Spike

Not applicable to this method. Refer to analytical SOPs

9.6 Laboratory Duplicate

Not applicable to this method. Refer to analytical SOPs

9.7 Method-specific Quality Control Samples

Not applicable to this method. Refer to analytical SOPs

9.8 Method Sequence

Not applicable.

10. Procedure

The procedures described below are general cleaning and pre-processing procedures that are to be followed regardless of the type of tissue being processed. Samples are prioritized by the Department Manager or Team Leader based on hold time and client due date. All weights, measurement and other project required observations are recorded on the Tissue Prep Log sheets.

10.1 Equipment Set-up

10.1.1 Wash all utensils, generator probes, sample processor (blades, blade post, cup and lid) and the cutting board(s) with an alconox solution and a sponge. Rinse thoroughly with tap water, then with DI water and allow to dry. Equipment may be dried with a paper towel, if needed.

10.1.2 After drying the equipment, rinse all utensils, processor parts and surfaces with Acetone followed by a rinse with methylene chloride.

10.1.2.1 For metal analyses only, rinse all plastic and ceramic utensils with 25% HNO₃ followed by another rinse with DI water. Rinse processor parts and surfaces with the alconox solution, followed by a tap water and a DI water rinse. Any metal or titanium surfaces must not come into contact with the 25% HNO₃ solution as this may strip some metal alloys from these surfaces and introduce contamination.

10.2 Initial Calibration

Not applicable.

10.3 Equipment Operation and Sample Processing

10.3.1 Gloves must be worn when handling tissue samples.

10.3.2 Tissue samples should be partially thawed before starting, to the point where it becomes possible to make an incision in, or cut through, the flesh.

10.3.3 Note any morphological abnormalities on the processing records.

10.3.4 Fish Tissue Preparation

10.3.4.1 Determine the wet weight for each individual fish using a calibrated balance and appropriate weighing dish. Follow project specifications for alternate sample weight determinations.

10.3.4.2 Determine the length of each fish using a ruler, and record with the weight. Some measurements may, or may not be, a part of the project specifications. Additionally, a picture with a ruler in the foreground may be required. Follow project specifications.

10.3.4.3 Removal of Scales or Skin

10.3.4.3.1 If required by project specifications, the scales and/or skin of the fish will be removed prior to filleting. Clean all glassware and utensils as described in Section 10.1.

10.3.4.3.2 Rinse the fish with DI water and dry using a paper towel. Lay the fish on the cleaned, and/or lined, cutting board

Scrape the fish from tail to head using the blade edge of a cleaned stainless steel, ceramic or titanium knife, to remove the scales. Continue until all scales are removed.

10.3.4.3.3 Depending upon the outward condition of the samples, the sample may be rinsed with DI water and pat dry with paper towel. Place the fish on a clean cutting board, for filleting or skinning.

10.3.4.3.4 To skin the fish: Using a stainless steel knife, cut the skin behind the operculum (gill cover). Using the knife blade, pliers or other cleaned utensil, pull the skin off towards the tail of the fish. If necessary, cut lightly along the inside of the skin, slowly separating the skin from the muscle tissue. Removing the skin may require cutting the skin along the backbone or underbelly of the fish. If necessary follow project specifications for weight determinations.

10.3.4.4 Filleting the Fish

10.3.4.4.1 Using fresh gloves and the specified knife, make a cut behind the entire length of the operculum (gill cover), making sure to cut through the skin, if still attached, and the flesh, as close to the bone as possible. Note: If the fish samples are small, and it appears difficult to fillet, or if the amount of the fillet appears to be insufficient for the analysis requested, consult the Department Manager and/or Project Manager prior to filleting. In some cases it may be necessary to homogenize the whole body.

10.3.4.4.2 Make a cut across the caudal peduncle (the base of the tail fin) keeping as close to the caudal (tail) fin as possible. Continue cutting along the underbelly of the fish, moving from the head to the tail.

10.3.4.4.3 Go back to the cut made at the beginning at the operculum, and slice down the entire length of the fish following along the backbone until reaching the cut previously made across the caudal peduncle.

Gently slide the stainless knife along the backbone of the fish and along the rib cage. Remove the fillet from the fish. Be sure to include the belly flap in each fillet and do not remove the dark muscle tissue in the vicinity of the lateral line from the light muscle tissue that makes up the rest of the muscle tissue mass.

10.3.4.4.4 Remove any bones that may be left attached to the fillet. Repeat the fillet steps 10.3.4.4.1 through 10.3.4.4.3, for the opposite side of the specimen.

10.3.4.4.5 Note in the sample processing records if the internal organs were ruptured during freezing or if inadvertent puncture of the internal organs occurred during the filleting process. If the internal organs did rupture or were punctured, notify project manager for further guidance.

- 10.3.4.4.6** Place a glass plate on the balance. Tare the balance and record the appropriate weights in the appropriate spreadsheet or logbook as determined from the project specific QAPP. This may include weighing the fillet(s), carcass or skin.
- 10.3.4.4.7** If the fillet(s) and/or the carcass are to be homogenized immediately, proceed to Section 10.3.4.5. If not, store in the appropriate container; see Section 4 for allowable materials. Note that it may be necessary to chop the fillet(s) or carcass into smaller pieces, with the appropriately cleaned knife, before storage, and before homogenization, so the entire sample will fit into the storage container or the homogenization vessel. See the project specific QAPP for additional details.
- 10.3.4.4.8** If the samples will not be homogenized immediately, the samples must be returned to the Sample Management office and placed back into the freezer, until homogenization

10.3.4.5 Homogenization

- 10.3.4.5.1** Allow the fillet(s), carcass or whole body to partially thaw if previously frozen.
- 10.3.4.5.2** Fillets/Skin/Whole Body: Weigh a glass jar on the balance and record the weight. Tare the same glass jar. Be sure the jar is large enough to allow headspace for freezing after sample homogenization. While wearing the appropriate gloves, place the sample on the cutting board. Using the appropriate knife, slice and cut the sample into small chunks, preferably 1" squares or less. Add the sample to the appropriate size glass container for homogenization. Record the pre homogenization weight or follow project specific QAPP. Immerse the sample into the pre-cleaned generator probe (see section 10.1). Homogenize the sample until it appears fully and consistently homogenized tuning into a fine paste. This procedure may require mixing the sample during the homogenization process with a stainless steel spatula, ensuring all sample is equally processed and no sample remains on the side of the jar.
- 10.3.4.5.3** Large Whole Body/Carcass: Large sample carcasses may need to be homogenized using a hand held grinder/ electric grinder or food processor. Add the pre-sliced sample to the pre-cleaned blender (see section 10.1) and "push" through the auger part of the grinder. Collect the sample into a pre-tared jar or glass plate. Further processing using additional equipment may be necessary to achieve a consistently homogenized sample.
- 10.3.4.5.4** After homogenization, remove as much sample from the processing equipment as possible using a stainless steel spatula or other utensil and add to the processed sample. Re-weigh the sample and record the post-homogenization weight. Individual homogenates may be processed further to prepare composite homogenates as required by project specifications. All individual weights that make up one composite must be recorded, if required, or one composite weight may be recorded. If individual or composite homogenates were frozen prior

to extraction/digestion, these homogenates must be thawed and re-homogenized by hand mixing prior to being extracted or digested.

10.3.4.5.5 Place the individual or composite homogenized samples into the appropriate glass jars to be frozen pending future extraction/digestion. If the samples will not be extracted/digested immediately, the samples must be returned to the Sample Management office and placed back into the freezer, until extraction/digestion. All freezer logbooks must be filled out for hold time tracking purposes. Note the return of the samples to Sample Management must be documented in the LIMS Tracking log.

10.3.4.5.6 All utensils and equipment must be washed in between samples according to the procedures described previously in Section 10.1.

10.3.5 Mollusk Preparation

10.3.5.1 Wash all utensils, the cutting board, and surfaces as previously described in Section 10.1. Note the allowable materials in Section 4. Obtain samples from the Sample Management office and log them out of the freezer logbooks for hold time tracking purposes. Note removal of samples in the LIMS Tracking log.

10.3.5.2 If required by the project specifications, measure and record the length of the sample shell.

10.3.5.3 Cover the balance with the proper material as described in Section 4, and weigh and record the sample weight.

10.3.5.4 Wearing the proper gloves, place the sample on the cleaned cutting board. Samples should be partially thawed. If the sample is frozen, it will be difficult to break open the shell. If the sample is excessively thawed, the internal tissue will become soupy and difficult to remove.

10.3.5.5 If preparing *Bivalve* specimens, use the titanium knife to cut the abductor muscle by sliding the knife through the crevice where the two shells meet. Once the abductor muscle is cut the two shell pieces should come apart easily.

10.3.5.6 Carefully remove the top shell, and scoop out the internal tissue that is resting on the mantle. Be careful not to tip the bottom shell. If the sample is excessively thawed, the sample internal fluids may spill out of the shell. The internal fluids must be retained as part of the sample. If the bivalve is still partially frozen as suggested, the tissue should easily be removed from the shell in one piece.

10.3.5.7 Cover the balance with the proper material and weigh the amount of tissue obtained from the sample. Record the weight along with the information previously recorded on the processing records. The sample may now be stored pending homogenization in the appropriate jar, see Section 10.3.5.17. If the sample will be homogenized immediately, proceed to 10.3.5.13.

- 10.3.5.8** If preparing *Gastropod* specimens, a mallet will be necessary to open the shell.
- 10.3.5.9** Place a paper towel or piece of lab mat over the shell of the Gastropod specimen
- 10.3.5.10** Holding the shell still with one hand, use the mallet to hit the paper towel that is over the shell, in order to crush the shell.
- 10.3.5.11** Using the appropriately cleaned tweezers, remove the tissue from the crushed shell pieces.
- 10.3.5.12** Cover the balance with the proper material and weigh the amount of tissue obtained from the sample. Record the weight along with the information previously recorded on the processing records. The sample may now be stored pending homogenization in the appropriate jar, see Section 10.3.5.17. If the sample will be homogenized immediately, proceed to 10.3.5.13.
- 10.3.5.13** Since the amount of tissue obtained from one bivalve or gastropod is generally small, several specimens are frequently combined to make one sample. Utensils do not need to be rinsed between the individual samples that comprise one composite, but utensils must always be rinsed in between each composite sample.
- 10.3.5.14** If several specimens will be composited to make one sample, follow the applicable Sections of 10.3.5.1 through 10.3.5.11, for each of the specimens. The tissue obtained from each specimen may be weighed and recorded individually, then totaled for the composite weight. If only one composite weight is sufficient for the project specifications, weigh the entire composite and record that weight.
- 10.3.5.15** After the tissue has been removed from all of the specimen shells for one composite or individual sample, place the tissue in the clean small processor with the titanium blade to be homogenized. Grind the sample until it appears to be fully and consistently homogenized and there are no large chunks.
- 10.3.5.16** Individual homogenates may be processed further to prepare composite homogenates as required by project specifications. Composite homogenates must be prepared from equal weights of individual homogenates. All individual weights that make up one composite must be recorded, if required, or one composite weight may be recorded. If individual or composite homogenates were frozen prior to extraction/digestion, these homogenates must be thawed and re-homogenized by hand mixing prior to being extracted or digested.
- 10.3.5.17** Place the processed samples into the appropriate glass jars to be frozen for future extraction/digestion, see Section 4. If the samples will not be extracted/digested immediately, the samples must be returned to the Sample Management office and placed back into the freezer, until extraction/digestion. Record placement of the samples in the freezer, in the freezer storage logbook, for hold time tracking. Note return of the samples to Sample Management in the LIMS Tracking log.

- 10.3.5.18** All utensils and equipment must be washed in between samples according to the procedures described previously in Section 10.1.

10.3.6 Crustacean Preparation

10.3.6.1 Lobsters

- 10.3.6.1.1** Wash all utensils, the cutting board, and surfaces as previously described in Section 10.1. Note the allowable materials in Section 4. Obtain samples from the Sample Management office and log them out of the freezer logbooks for hold time tracking purposes. Note removal of samples in the LIMS Tracking log.
- 10.3.6.1.2** If project specifications require gender determination of lobsters, this must be done prior to dissecting. To determine the gender, hold the lobster by the thorax, and flip it over to examine the underneath abdomen. Just below the legs and where the abdomen division begins, there is a first pair of swimmerets. The first pair of swimmerets is what is used to distinguish the lobster's gender. If the first pair is soft, has small hairs, and the swimmerets are crossed, it is **female**. On a **male** lobster, the first pair of swimmerets is hard and stiff, and generally do not touch.
- 10.3.6.1.3** If the hepatopancreas of the lobster samples is to be analyzed, the samples should be received alive. If the samples are frozen prior to dissection the hepatopancreas could burst upon thawing making it difficult to remove. To remove the hepatopancreas, the live lobster should be placed on a cleaned cutting board. Wearing the proper gloves, one analyst holds the two chelipeds (claws) out in front of the lobster, while also holding down the lower abdomen and telson (tail). The second analyst takes a knife, and places it on the groove in the carapace (outer shell), just behind the head region. Keeping the knife at an angle, the second analyst must push down and forward to remove the head. Once the head is removed the hepatopancreas can be seen lying just under the carapace and running the length of the thorax. The hepatopancreas is generally a greenish-yellow color, but there may be some variation. Scoop the hepatopancreas out gently trying not to break it into pieces. Cover the tray of the balance with the proper material, and weigh and record the weight of the hepatopancreas on the processing record, and place it into an appropriate sample jar for freezing and future extraction/ digestion.
- 10.3.6.1.4** To remove the edible meat, remove the two chelipeds from the body of the lobster at the joint. Place a piece of lab mat or paper towel over the cheliped and pound with a mallet. Once the shell is crushed remove the meat, using the appropriately cleaned tweezers or other tool, making sure to get all the meat in the joints and arms. Cover the balance tray with the appropriate material and weigh and record the total tissue weight obtained from the two chelipeds and arms. Record this weight with the previously recorded information on the sample processing record.
- 10.3.6.1.5** Remove the abdomen and telson from the rest of the carapace by pulling the lobster apart. Using the titanium coated knife, cut through

the center underside tissue of the lobster and laterally along the exoskeleton of the tail. Once the abdomen and tail have been cut open, separate the shell from the edible meat using cleaned utensils. Any eggs found in the female lobsters will have to be removed and discarded. Cover the balance tray with the appropriate material, and record the weight of the tissue obtained from the abdomen and telson on the processing record. The sample may now be stored pending homogenization in the appropriate jar.

10.3.6.2 Crabs

10.3.6.2.1 If removing tissue from *crabs* break off all legs and claws. Squeeze, pull, cut or pick all the tissue out of the legs and chelipeds. Pull apart the carapace. The carapace should be easy to remove by pulling up on the holes left from when the legs were broken off. Scoop out the tissue. Cover the balance tray with the appropriate material and record the weight of the tissue obtained from the legs, claws, and carapace on the processing record. The sample may now be stored pending homogenization in the appropriate jar, see Section 10.3.6.7. Any eggs found in the female crabs will have to be removed and discarded.

10.3.6.2.2 If the hepatopancreas of the crab samples is to be analyzed, the samples should be received alive. If the samples are frozen prior to dissection the hepatopancreas could burst upon thawing, making it difficult to remove. In order to remove the hepatopancreas of a frozen crab, remove the legs and claws, and then the top shell can be removed by cutting along the outside edge of the top shell. The top shell can then be removed. It is best if the crab(s) are chilled live in a refrigerator for 30-60 minutes, prior to removal of the hepatopancreas, to slow the crab's movements. To remove the hepatopancreas, the live crab should be placed on a cleaned cutting board. Wearing the proper gloves, the analyst must hold the crab still, with the claws facing away from the analyst. Then grab the back of the top shell with fingers or cleaned pliers, and pull the back shell from the crab. Once the back shell is removed the hepatopancreas can be seen lying inside the body cavity. The hepatopancreas is generally a greenish-yellow color, but there may be some variation. Scoop the hepatopancreas out gently trying not to break it into pieces. Cover the tray of the balance with the proper material, and weigh and record the weight of the hepatopancreas on the processing record. Place it into an appropriate sample jar for freezing and future extraction/ digestion.

10.3.6.3 Since the amount of tissue obtained from one crustacean may be small, several specimens may be combined to make one sample. Utensils do not need to be rinsed between the individual samples that comprise one composite, but utensils must always be cleaned and rinsed in between each composite sample.

10.3.6.4 If several specimens will be composited to make one sample, follow the applicable Sections of 10.3.6.1.1 through 10.3.6.1.5 for lobsters, or 10.3.6.2.1 through 10.3.6.2.2 for crabs for each of the specimens. The tissue obtained from each specimen may be weighed and recorded individually, then totaled for the composite weight. If only one composite

weight is sufficient for the project specifications, weigh the entire composite and record that weight.

- 10.3.6.5** After the tissue has been removed from all of the specimen shells for one composite or individual sample, grind the sample until it appears to be fully and consistently homogenized and there are no large chunks. This procedure may require mixing the sample during the homogenization process with a stainless steel spatula, ensuring all sample is equally processed and no sample remains on the side of the jar.
- 10.3.6.6** Individual homogenates may be processed further to prepare composite homogenates as required by project specifications. All individual weights that make up one composite must be recorded, if required, or one composite weight may be recorded. If individual or composite homogenates were frozen prior to extraction/digestion, these homogenates must be thawed and re-homogenized by hand mixing prior to being extracted or digested.
- 10.3.6.7** Place the processed samples into the appropriate glass jars to be frozen for future extraction/digestion, see Section 4 for allowable materials. If the samples will not be extracted/digested immediately, the samples must be returned to the Sample Management office and placed back into the freezer, until extraction/digestion. Record placement of the samples in the freezer, in the LIMS, for hold time tracking. Note return of the samples to Sample Management in the LIMS Tracking log.
- 10.3.6.8** All utensils and equipment must be washed in between samples according to the procedures described previously in Section 10.1. If any processing equipment comes in contact with a crab that is not going to be included in the composite, the equipment must be washed as described in section 10.1 before continuing.

10.3.7 Mammals (Mice and Shrew)

- 10.3.7.1** Wash all utensils, the cutting board, and surfaces as previously described in Section 10.1. Note the allowable materials in Section 4. Obtain samples from the Sample Management office and log them out of the freezer logbooks for hold time tracking purposes.
- 10.3.7.2** Place the first five, partially thawed samples to be processed, and all equipment needed into the glove box on a freshly laid out lab mat. Equipment needed includes:
- Empty and pre-labeled glass sample containers for the processed homogenate,
 - PVC gloves or Latex gloves,
 - 10% Bleach solution, 25% HNO₃ and methylene chloride, methanol and hexane in squirt bottles,
 - Omni grinding unit,
 - Balance,
 - Nylon bristled brushes,
 - Ceramic, titanium, or stainless steel (organic compounds only) knives, spatulas and/or other utensils,
 - Cutting board (s),

- DI water in a squirt bottle and Kim wipes,
- Laboratory waste bottles with caps.

- 10.3.7.3** Once all materials are in the glove box and set up for use, seal the transfer box and ensure the motor blower is on. Over tightening of the outer or inner door knobs is not necessary to achieve a good seal. Place your hands into the gloves attached to the glove ports and place PVC or Latex gloves over the glove port gloves for use. The outer PVC or Latex gloves will need to be changed in between each sample.
- 10.3.7.4** If the gender of the mouse or shrew needs to be determined, turn the animal over and note the length of the anus and the distance of the anus from the tail. If the anus is elongated in shape and does not touch the base of the tail, testicles and a large genital papilla are visible, and there are no nipples, the animal is **male**. If the anus is round in shape and almost touches the base of the tail and/or there are nipples (up to five sets), the animal is **female**. If the animal is very small, young or immature and a gender determination cannot be made, note that the gender is *undetermined*. Record the gender observations on the processing records.
- 10.3.7.5** If skinning of the mammal is required, carefully make an incision at the tail end and cut just below the skin along the back, from one hind leg to the other. Make another cut from one hind leg to one front leg, and repeat the cut on the other side of the animal. Starting from the tail, lift the skin flap, and carefully separate the skin from the muscle tissue below. Pull the skin forward from the tail to the head to expose the back tissue of the animal. Repeat the procedure on the stomach side of the animal. Note: it may be very difficult to remove the skin from the legs, head and the tail. If some skin cannot be removed, note this on the processing records.
- 10.3.7.6** Weigh and record the weight of the mammal on the processing records. Depending upon the size of the mammal, it may need to be chopped into small pieces before being ground. Generally, mice and shrew can be quartered before homogenization if needed.
- 10.3.7.7** Put the whole body or chopped sample into the cup of the grinding unit. Ensure the sample is in contact with the blades of the unit and place a bag over the entire grinding unit to help contain and minimize splatter on the walls of the glove box.
- 10.3.7.8** Turn the grinding unit on low speed and gradually increase the speed to homogenize the sample being careful to minimize any splatter or outside contamination. Homogenize until a uniform consistency is achieved.
- 10.3.7.9** Transfer the homogenized sample from the cup to the pre-labeled sample jar using the appropriate utensil. Carefully clean the threads of the sample jar with a DI water-soaked Kim wipe. Clean the outside of the sample jar with a 10% bleach-soaked Kim wipe. Set the sample jar inside the transfer box and close the transfer box inner door.
- 10.3.7.10** To clean the grinding unit in between samples, remove as much residual tissue on the blade as possible by operating the unit at low or medium speed with DI water in the sample cup. Keep a bag over the grinding unit

as the primary containment for splashing. If necessary, use the nylon brush to gently scrub the exposed surfaces and to dislodge remaining tissue. Repeat as necessary, until the unit appears clean. Any plastic or ceramic parts must now be given a final rinse with 25% HNO₃ then DI water when processing samples for metals analysis. If processing for organic compounds only, rinse with DI water, acetone and then the methylene chloride.

- 10.3.7.11** Repeat steps 10.3.2.3 through 10.3.7.10 until the five samples have been processed and each placed into the transfer box. Ensure the outer Latex or PVC gloves are changed in between each sample.
- 10.3.7.12** Since the amount of tissue obtained from one mouse or shrew may be small, several specimens may be combined to make one sample, as required by project specifications. Utensils do not need to be rinsed between the individual samples that comprise one composite, but utensils must always be cleaned in between each composite sample.
- 10.3.7.13** If several specimens will be composited to make one sample, follow the applicable Sections of 10.3.7.3 through 10.3.7.10, for each of the specimens. The tissue obtained from each specimen may be weighed and recorded individually, then totaled for the composite weight. If only one composite weight is sufficient for the project specifications, weigh the entire composite and record that weight.
- 10.3.7.14** Remove the individual or composite sample jars from the transfer box from the outside of the glove box, and return them to the Sample Management office for storage in the freezers until extraction/digestion. At the same time, obtain the next five samples to be processed and homogenized from the Sample Management office freezers. Movement of samples into and out of freezer storage must be documented in the freezer logbooks and in the LIMS Tracking log.
- 10.3.7.15** Allow the samples to partially thaw and begin again at 10.3.7.3 through 10.3.7.14 until all samples have been processed and homogenized. Clean the outer surfaces of the homogenate sample jars as described in 10.3.7.10, and remove them from the transfer box. If the samples will not be extracted/digested immediately, the samples must be returned to the Sample Management office and placed back into the freezer, until extraction/digestion. Record placement of the samples in the freezer, in the freezer storage logbook, for hold time tracking. Note return of the samples to Sample Management in the LIMS Tracking log.
- 10.3.7.16** Before removing any equipment from the glove box, the following disinfection steps must be taken:
- Remove the primary containment bag. Take care not to invert the bag. Place this bag into another bag.
 - After the grinding unit, cup and blades have been cleaned with DI water as in 10.3.7.10, rinse the entire unit with the 10% bleach solution. Collect the bleach in a waste bottle.
 - Remove the bags that were twist tie secured to the grinding unit, and place them into another bag. Rinse the entire unit again with the bleach solution.
 - Roll up the bench liner, and place this into a bag.

- Pour all waste solutions into capped waste bottles. Place these bottles and any other bleach cleaned utensils, into bags, and seal all bags.
 - Wipe the inside surfaces of the glove box with Kim wipes soaked in the bleach solution.
 - The glove box transfer doors may now be opened to remove the grinding unit and waste. The waste material may be discarded after adding 10% bleach. The utensils and the grinding unit may be re-washed according to the normal cleaning procedures.
- 10.3.7.17** Individual homogenates may be processed further to prepare composite homogenates as required by project specifications. Composite homogenates must be prepared from equal weights of individual homogenates. All individual weights that make up one composite must be recorded, if required, or one composite weight may be recorded. If individual or composite homogenates were frozen prior to extraction/digestion, these homogenates must be thawed and re-homogenized by hand mixing prior to being extracted or digested.
- 10.3.7.18** After individual homogenates have been combined to form the final sample composite homogenate, as requested, all utensils and equipment must be washed, in between samples, according to the procedures described previously in Section 10.1.
- 10.3.7.19** If the final sample composite homogenates will not be extracted/digested immediately, the samples must be returned to the Sample Management office and placed back into the freezer, until extraction/digestion. Record placement of the samples in the freezer, in the LIMS, for hold time tracking. Note return of the samples to Sample Management in the LIMS Tracking log.

10.3.8 Reptiles and Amphibians (Frogs and Turtles)

- 10.3.8.1** Wash all utensils, the cutting board, and surfaces as previously described in Section 10.1. Note the allowable materials in Section 4. Obtain samples from the Sample Management office and log them out of the freezer logbooks for hold time tracking purposes. Note removal of samples in the LIMS Tracking log.
- 10.3.8.2** Wearing the proper gloves, place the *turtle* sample on the cleaned cutting board. The turtle should be partially thawed. If the turtle is frozen, it will be difficult to remove the muscle. If the sample is excessively thawed, the internal tissue will become soupy and difficult to remove.
- 10.3.8.3** Take all project required measurements. The distance between the anterior and posterior edge of a turtle carapace (top of shell) should be measured with a ruler and recorded on the processing records. If the entire mass of the turtle, including the shell, needs to be recorded, cover the balance with the proper material and weigh and record this weight on the processing records.
- 10.3.8.4** Since the plastron (bottom of shell) and carapace are extremely dense and difficult to cut through with normal dissecting tools, the muscle tissue of the turtle must be removed by cutting the body of the turtle away from the

shell. Insert a knife, made of the proper material, into the skin of the turtle, close to the shell on the lower half of the body. Slowly, cut along the entire circumference of the shell. Repeat the procedure on the upper half of the body, on both sides of the shell.

- 10.3.8.5** With dissection scissors, or a ceramic or titanium paring knife of the proper material, remove the skin from the hind limbs, tail, fore limbs and neck.
- 10.3.8.6** Using the appropriate utensils, remove the muscle tissue from the tail, neck, hind limbs, and fore limbs, including the feet, leaving bone and claws behind. Remove any visible muscle tissue within the carapace. Most of this tissue will be found in the upper portion of the carapace around the pectoral area.
- 10.3.8.7** Cover the balance with the proper material and weigh the amount of tissue obtained from the turtle sample. Record the weight along with the information previously recorded on the processing records. The sample may now be stored pending homogenization in the appropriate jar, see Section 10.3.8.15. If the sample will be homogenized immediately, proceed to 10.3.8.13.
- 10.3.8.8** If processing *frogs*, allow the frog to partially thaw, take the project specific measurements, and record them on the processing records. The number of frogs required to make up one sample, and the weight and length of the individual frogs, must be taken and recorded, if specified. In all cases, the skin must be removed from the frog prior to processing and chopped into smaller pieces, due to its thickness. It will then be added to the processor with the whole body of the frog, or it may be discarded depending upon the project specifications.
- 10.3.8.9** To skin the frog, make an incision, using the proper utensils, and cut into an area where there is an excess of skin, most likely around the neck. Slowly, pull the skin off of the frog using dissecting scissors, or a ceramic or titanium paring knife, as needed. Once skin is removed chop it up into tiny pieces using the appropriate knife and set it aside to be processed with the whole frog body.
- 10.3.8.10** Cover the balance with the proper material and weigh the amount of tissue obtained from the frog sample, if the tissue and not the whole body will be processed. Record the weight along with the information previously recorded on the processing records. The sample may now be stored pending homogenization in the appropriate jar, see Section 10.3.8.15. If the sample will be homogenized immediately, proceed to 10.3.8.13.
- 10.3.8.11** Since the amount of tissue obtained from one small turtle or frog may be insignificant, several specimens may be combined to make up one sample. Utensils do not need to be rinsed between the individual samples that comprise one composite, but utensils must always be rinsed in between each composite sample.
- 10.3.8.12** If several specimens will be composited to make up one sample, follow the applicable Sections of 10.3.8.1 through 10.3.8.10, for each of the specimens. The tissue obtained from each specimen may be weighed and recorded individually, then totaled for the composite weight. If only the

composite weight is sufficient for the project specifications, weight the entire composite and record that weight.

- 10.3.8.13** After the tissue has been removed from all of the specimens, homogenize the muscle tissue, and skin if required, by placing it into the small or large food processor fitted with the appropriate blades (stainless steel for the large processor and titanium for the small processor). See Section 4 for allowable materials. The sample may need to be cut into smaller pieces for processing. Grind the sample until it appears to be fully and consistently homogenous. Continue to grind the sample until there are no chunks present in the homogenate.
- 10.3.8.14** Individual homogenates may be processed further to prepare composite homogenates as required by project specifications. Composite homogenates must be prepared from equal weights of individual homogenates. All individual weights that make up one composite must be recorded, if required, or one composite weight may be recorded. If individual or composite homogenates were frozen prior to extraction/digestion, these homogenates must be thawed and re-homogenized by hand mixing prior to being extracted or digested.
- 10.3.8.15** Individual or composite samples may be returned to the Sample Management office for further storage in freezers pending extraction/digestion. All processed samples are stored in the proper containers noted in Section 4. All freezer logbooks must be filled out for hold time tracking purposes. Return of samples to Sample Management must be documented in the LIMS Tracking log.
- 10.3.8.16** All utensils and equipment must be washed in between samples according to the procedures described previously in Section 10.1.

10.3.9 Macro Invertebrates

- 10.3.9.1** Wash all utensils, the cutting board, and surfaces as previously described in Section 10.1. Note the allowable materials in Section 4. Obtain samples from the Sample Management office and log them out of the freezer logbooks for hold time tracking purposes. Note removal of samples in the LIMS Tracking log.
- 10.3.9.2** Cover the balance tray with the appropriate material and record the weight of the invertebrate sample. Since the weight obtained from one invertebrate (benthic worms, insects or biota) may be small, several invertebrates may be combined to make one sample. In many cases, several invertebrates of the same species and sample location are delivered to the laboratory in one sample jar. Each specimen from this jar must be weighed, if requested, and composited to form one homogenized and unique sample. If only one composite weight is sufficient for the project specifications, weigh the entire composite and record that weight. Utensils do not need to be rinsed between the individual samples or specimens that comprise one composite, but utensils must always be rinsed in between each composite sample.

10.3.9.3 Invertebrates such as eels must be chopped into smaller pieces before homogenization. This is generally due to the length of the specimen and the thickness of the skin.

10.3.9.3.1 For project specifications requiring eel specimens to be skinned prior to homogenization, first secure eel to cutting board using a stainless steel screw. Using a stainless steel knife, cut the skin behind the operculum (gill cover). Using the knife blade, pliers or other cleaned utensil, pull the skin off towards the tail. If necessary, cut lightly along the inside of the skin, slowly separating the skin from the muscle tissue. Removing the skin may require cutting the skin along the backbone or underbelly. If necessary follow project specifications for weight determinations.

10.3.9.4 Place the weighed specimen into the clean small processor with the titanium blade to be homogenized. Process the sample until it appears to be fully and consistently homogenized and there are no large chunks.

10.3.9.5 Individual homogenates may be processed further to prepare composite homogenates as required by project specifications. Composite homogenates must be prepared from equal weights of individual homogenates. All individual weights that make up one composite must be recorded, if required, or one composite weight may be recorded. If individual or composite homogenates were frozen prior to extraction/digestion, these homogenates must be thawed and re-homogenized by hand mixing prior to being extracted or digested.

10.3.9.6 Individual or composite samples may be returned to the Sample Management office for further storage in freezers pending extraction/digestion. All homogenates are stored in the proper containers noted in Section 4. All freezer logbooks must be filled out for hold time tracking purposes. Return of samples to Sample Management must be documented in the LIMS Tracking log.

10.3.9.7 All utensils and equipment must be washed in between samples according to the procedures described previously in Section 10.1.

10.3.10 Plants

10.3.10.1 Wash all utensils, the cutting board, and surfaces as previously described in Section 10.1. Note the allowable materials in Section 4. Obtain samples from the Sample Management office and log them out of the freezer logbooks for hold time tracking purposes. Note removal of samples in the LIMS Tracking log.

10.3.10.2 Wearing the appropriate gloves, plants must be rinsed with DI water to remove soil, silt, small insects, and other debris. Place the plants in a stainless steel or plastic strainer, depending on the determinative sample analysis, and rinse thoroughly with DI water. If analyzing the sample for metals and organic compounds, rinse the plants carefully over a sink, being sure not to touch the sides of the sink with the plant sample.

- 10.3.10.3** Depending on the size and texture of the plants, some may be homogenized in the small food processor with the titanium blade. Samples such as long grass will have to be chopped into small pieces (approximately 1/2 inch) using titanium or ceramic knives. Leaves can generally be homogenized in the small food processor without pre-cutting.
- 10.3.10.4** Some project specifications may require the plants to be dried prior to homogenization. A plastic salad spinner may be used to remove excess water from samples, if organic compounds do not need to be determined. If both metals and organic compounds need to be determined, air drying for 48 hours, or oven drying overnight at low temperatures (S 50°C), can be done. Freeze drying the plant is an additional option for the removal of water and may be employed per project specifications.
- 10.3.10.5** Cover the balance tray with the appropriate material and record the weight of the plant sample. Since the weight obtained from one plant may be small, several plants may be combined to make one sample. Utensils do not need to be rinsed between the individual samples that comprise one composite, but utensils must always be rinsed in between each composite sample.
- 10.3.10.6** If several plants will be composited to make one sample, follow the applicable Sections of 10.3.10.2 through 10.3.10.5, for each of the specimens. The weight of each specimen may be recorded individually, and then totaled for the composite weight. If only one composite weight is sufficient for the project specifications, weigh the entire composite and record that weight on the processing records.
- 10.3.10.7** After the plant weight for one composite or individual sample has been recorded, place the plant(s) in the clean small processor with the titanium blade to be homogenized, or place them onto the cleaned cutting board to be chopped. Grind or chop the plants until they appear to be fully homogenized.
- 10.3.10.8** Individual homogenates may be processed further to prepare composite homogenates as required by project specifications. Composite homogenates must be prepared from equal weights of individual homogenates. All individual weights that make up one composite must be recorded, if required, or one composite weight may be recorded. If individual or composite homogenates were frozen prior to extraction/digestion, these homogenates must be thawed and re-homogenized by hand mixing prior to being extracted or digested.
- 10.3.10.9** Place the homogenized plants into the appropriate glass jars to be frozen for future extraction/digestion, see Section 4. If the samples will not be extracted/digested immediately, the samples must be returned to the Sample Management office and placed back into the freezer, until extraction/digestion. Record placement of the samples in the freezer, in the freezer storage logbook, for hold time tracking. Return of samples to Sample Management must be documented in the LIMS Tracking log.
- 10.3.10.10** All utensils and equipment must be washed in between samples according to the procedures described previously in Section 10.1.

10.4 Continuing Calibration

Not applicable.

10.5 Preventive Maintenance

Not applicable to this method.

11. Data Evaluation, Calculations and Reporting

The processing bench sheets and other relevant laboratory notebooks must follow the specifications in the ALPHA ANALYTICAL *Logbook Usage Work Instructions* (WI 108-01), and all record keeping and document control practices. Separate project-specific documents may be used in place of Alpha bench sheets, as necessary.

See the appropriate ALPHA analytical SOPs noted in Section 1, for details on sample analysis, data evaluation, calculations and data reporting.

All results for the organic/inorganic compounds of interests are reportable without qualification if extraction/digestion and analytical holding times are met, preservation (including cooler and freezer temperatures) are met, all QC criteria defined in the table below are met, and matrix interference is not suspected during extraction/digestion and/or analysis of the samples. If any of the below QC parameters are not met, all associated samples must be evaluated for re-extraction and/or re-analysis.

QC Parameter	Acceptance Criteria
Equipment/Processing Blank	< reporting limit
Method Blank	< reporting limit
Laboratory Control Sample	See the applicable ALPHA analytical SOP for acceptance criteria
Matrix Duplicate	See the applicable ALPHA analytical SOP for acceptance criteria
Matrix Spike	See the applicable ALPHA analytical SOP for acceptance criteria
Matrix Spike Duplicate	See the applicable ALPHA analytical SOP for acceptance criteria
Surrogate Recoveries	See the applicable ALPHA analytical SOP for acceptance criteria
Standard Reference Material	See the applicable ALPHA analytical SOP for acceptance criteria

12. Contingencies for Handling Out-of-Control Data or Unacceptable Data

Section 9, Quality Control, defines the preparation and/or analytical corrective actions that must be taken in instances where QC outliers exist.

Section 11 outlines sample batch QC acceptance criteria. If non-compliant organic or inorganic compound analytical results are to be reported, the Department Manager and/or the Laboratory Director, and the QA Manager must approve the reporting of these results. The laboratory Project Manager shall be notified, and may choose to relay the non-compliance to the client, for approval, or other corrective action, such as re-sampling and re-analysis. The analyst or Department Manager performing the secondary review initiates the project narrative, and the narrative must clearly document the non-compliance and provide a reason for acceptance of these results.

13. Method Performance

13.1 Method Detection Limit Study (MDL) / Limit of Detection Study (LOD) / Limit of Quantitation (LOQ) – Not Applicable

Not Applicable

13.2 Demonstration of Capability Studies

Not Applicable

14. Pollution Prevention and Waste Management

Refer to Alpha's Chemical Hygiene Plan and Hazardous Waste and Sample Disposal SOP for further pollution prevention and waste management information.

Once satisfactory organic or inorganic compound results have been generated, the extracts/digestates are held for 30 days, or longer, if specified by a client contract. Then, organic extracts are discarded into a 55-gallon drum labeled "Vial Waste" and inorganic digestates are poured into a 55-gallon drum marked "Acid/Non-chlorinated" waste.

All solvent or reagent waste generated during processing and/or extraction/digestion must be stored in satellite containers in the preparation laboratories labeled "Organic Solvent", "Acid/Non-chlorinated" or "Bleach".

Once the organic solvent satellite containers are full, they must be emptied into 55-gallon drums marked "Organic Solvent Waste". Cleanup waste from the HPLC fractionators (silica cleanup) or GPC is emptied into the 55-gallon drum marked "HPLC Solvent Waste". Bleach from disinfection is emptied into the 20-gallon drum marked "Bleach", and reagent waste generated during metals analysis is emptied into a 55-gallon drum marked "Acid/Non-chlorinated" waste.

15. Referenced Documents

Chemical Hygiene Plan
SOP/08-05 MDL/LOD/LOQ Generation
SOP/08-12 IDC/DOC Generation
SOP/G-006 Hazardous Waste and Sample Disposal

16. Attachments

None.

Protocol Modification Form: Fish/Decapod QAPP No. 14

Project Name and Number: Passaic RI 09.58.02.31

Material to be Analyzed: Tissue

Measurement Parameter: Polychlorinated biphenyl (PCB) congeners

Standard Procedure for Field Collection & Laboratory Analysis (cite reference):

Fish/Decapod QAPP Worksheets 12, 15, and 28 state that PCB congeners will be analyzed using USEPA 1668A and reference Attachment T2, SOP No.AP-CM-7, High Resolution Mass Spectrometry, Method 1668A for Solid/Air/Aqueous/Tissue Matrices, Revision 7, 2/14/05.

Reason for Change in Field Procedure or Analysis Variation:

Analytical Perspectives implemented USEPA's revision B to Method 1668A, and is now referencing USEPA 1668B.

Variation from Field or Analytical Procedure:

Analytical Perspectives is conducting USEPA Method 1668B rather than 1668A as consistent with the attached revised SOP (SOP No. AP-CM-7, High Resolution Mass Spectrometry, Method 1668B for Solid/Air/Aqueous/Tissue Matrices, Revision 9, dated August 26, 2010). All Fish/Decapod QAPP tissue data will be reported using 1668B. The only change that will affect the Fish/Decapod QAPP data is the change in the nomenclature for congeners 107, 108, and 109 as summarized in the table below. The acceptance criteria provided in Worksheets 12 and 28 of the Fish QAPP/Decapod will be followed.

USEPA Method 1668A		USEPA Method 1668B	
PCB Congeners	Response Time	PCB Congeners	Response Time
108 /119/86/97/125/87	37:19	109 /119/86/97/125/87	37:19
107 /124	40:39	108 /124	40:39
109	40:54	107	40:54

Special Equipment, Materials or Personnel Required:

None.

Initiator's Name:



Date: 8/26/10

Project Manager:



Date: 9/10/10

QA Manager:

Jad Keshler

Date: 8/26/10

USEPA Authority:

Date:

Protocol Modification Form: Fish/Decapod QAPP No. 15

Project Name and Number: Passaic RI 09.58.02.31

Material to be Analyzed: Tissue

Measurement Parameter: Major cations (calcium, magnesium, sodium, and potassium)

Standard Procedure for Field Collection & Laboratory Analysis (cite reference):

Fish/Decapod QAPP Worksheets 12 and 28 indicate that matrix spikes will be performed for all metals analyses, including calcium, magnesium, sodium, and potassium.

Reason for Change in Field Procedure or Analysis Variation:

Matrix spikes for calcium, magnesium, sodium, and potassium will not be performed because the known background level in tissue is higher than the standard spiking level. The standard spiking level cannot be increased because analytical interferences are created when the major cations are present at the concentrations that would be required for the matrix spike (2 to 5 times the background concentration).

Variation from Field or Analytical Procedure:

Columbia Analytical Service, Kelso will not be performing matrix spikes for calcium, magnesium, sodium, and potassium in tissue as stated in Worksheets 12 and 28 of the Fish/Decapod QAPP. However, laboratory control samples (blank spikes) will include these major cations as specified in the Fish/Decapod QAPP.

Special Equipment, Materials or Personnel Required:

None.

Initiator's Name:



Date: 8/26/10

Project Manager:



Date: 9/10/10

QA Manager:



Date: 8/26/10

USEPA Authority:

Date: _____

Protocol Modification Form: Fish/Decapod QAPP No. 16

Project Name and Number: Passaic RI 09.58.02.31

Material to be Analyzed: Tissue

Measurement Parameter: Butyltins

Standard Procedure for Field Collection & Laboratory Analysis (cite reference):

Worksheet No. 28 of the Fish/Decapod QAPP states that a matrix duplicate will be performed per batch of 20 samples per matrix type for butyltins.

Reason for Change in Field Procedure or Analysis Variation:

Due to laboratory oversight, Columbia Analytical Services, Inc (CAS, Kelso) did not analyze matrix duplicates for tissues under the Fish/Decapod QAPP.

Variation from Field or Analytical Procedure:

CAS, Kelso did not include matrix duplicates for tissues under the Fish/Decapod QAPP. Matrix duplicates are not described in the laboratory SOP attached to the USEPA-approved Fish/Decapod QAPP, but were included in Worksheet No. 28 of the QAPP. All other quality control samples listed in the Worksheet No. 28 of the Fish/Decapod QAPP were analyzed for butyltins (e.g. laboratory control sample, method blank, matrix spike, and matrix spike duplicate), but matrix duplicates were not.

Special Equipment, Materials or Personnel Required:

None.

Initiator's Name:



Date: 1/19/11

Project Manager:



Date: 1/27/11

QA Manager:



Date: 1/28/11

USEPA Authority:

Date: _____

APPENDIX C. CHAIN-OF-CUSTODY FORMS

Alpha Analytical

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue To: Alpha Analytical # LPR-AA-MH-1A
 Project Number: 09.58.02.31 Attn: Ellen Collins Shipping Date:
 Contact Name: Jennifer Parker Shipper: Airbill Number:
 Sampled By: Windward Environmental LLC Form filled out by: Jennifer Parker / Diane Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)	
8/26/2009	07:12	LPR6-CSMH-Comp37	1	Tissue	X	X	X	X	
9/15/2009	09:58	LPR6-CSMH-Comp38	1	Tissue	X	X	X	X	
8/20/2009	13:03	LPR4-CSMH-Comp31	1	Tissue	X	X	X	X	
8/27/2009	07:13	LPR6-CSMH-Comp41	1	Tissue	X	X	X	X	
8/25/2009	07:26	LPR6-CSMH-Comp42	1	Tissue	X	X	X	X	
8/27/2009	07:52	LPR6-CSMH-Comp44	1	Tissue	X	X	X	X	
8/25/2009	09:24	LPR7-CSMH-Comp45	1	Tissue	X	X	X	X	
8/25/2009	09:24	LPR7-CSMH-Comp46	1	Tissue	X	X	X	X	
8/25/2009	09:35	LPR7-CSMH-Comp49	1	Tissue	X	X	X	X	
8/26/2009	08:58	LPR7-CSMH-Comp53	1	Tissue	X	X	X	X	
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # AA09_01LPR					

1) Released by: <u>[Signature]</u> Company: Alpha Analytical Date/Time: <u>3/23/10 1510</u> Rec'd by: <u>[Signature]</u> Company: Alpha Analytical Date/Time: <u>3/23/10 1510</u>	2) Released by: <u> </u> Company: <u> </u> Date/Time: <u> </u> Rec'd by: <u> </u> Company: <u> </u> Date/Time: <u> </u>	3) Released by: <u> </u> Company: <u> </u> Date/Time: <u> </u> Rec'd by: <u> </u> Company: <u> </u> Date/Time: <u> </u>	4) Released by: <u> </u> Company: <u> </u> Date/Time: <u> </u> Rec'd by: <u> </u> Company: <u> </u> Date/Time: <u> </u>	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.
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 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

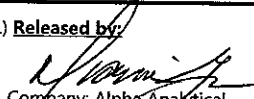
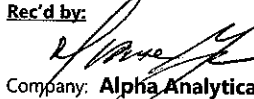
Date of receipt: <u>Satisfactory 3/23/10</u>	Laboratory W.O. #: <u>L1003087</u>
Condition upon receipt: <u>↓</u>	Time of receipt: <u>1510</u>
Cooler temperature: <u>N/A</u>	Received by: <u>[Signature]</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical** # LPR-AA-MH-1B
 Attn: **Ellen Collins**
 Shipper: **—**
 Form filled out by: **Jennifer Parker / Diane Janak**
 Shipping Date: **—**
 Airbill Number: **—**
 Turnaround requested: **Standard**

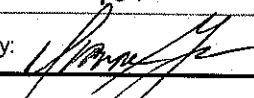
Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270D)		
9/10/2009	13:02	LPR8-CSMH-Comp61	1	Tissue	X	X	X	X		
8/25/2009	09:39	LPR7-CSMH-Comp48	1	Tissue	X	X	X	X		
9/9/2009	09:54	LPR8-CSMH-Comp54	1	Tissue	X	X	X	X		
8/25/2009	09:35	LPR7-CSMH-Comp50	1	Tissue	X	X	X	X		
9/9/2009	09:54	LPR8-CSMH-Comp55	1	Tissue	X	X	X	X		
9/8/2009	08:44	LPR8-CSMH-Comp56	1	Tissue	X	X	X	X		
9/9/2009	08:56	LPR8-CSMH-Comp57	1	Tissue	X	X	X	X		
9/1/2009	12:33	LPR1-CSMH-Comp01	1	Tissue	X	X	X	X		
9/2/2009	15:02	LPR1-CSMH-Comp02	1	Tissue	X	X	X	X		
9/2/2009	15:46	LPR1-CSMH-Comp03	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # AA09_01LPR						

1) Released by:  Company: Alpha Analytical Date/Time: 3/23/10 1510 Rec'd by:  Company: Alpha Analytical Date/Time: 3/23/10 1510	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.
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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 3/23/10	Laboratory W.O. #: L1003087
Condition upon receipt: Satisfactory	Time of receipt: 1510
Cooler temperature: N/A	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC


To:	Alpha Analytical		# LPR-AA-MH-1C
Attn:	Ellen Collins	Shipping Date:	_____
Shipper:	_____	Airbill Number:	_____
Form filled out by:	Jennifer Parker / Diane Janak	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270D)		
9/2/2009	15:46	LPR1-CSMH-Comp04	1	Tissue	X	X	X	X		
Total Number of Containers			1 of 21	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by: Company: Alpha Analytical Date/Time: 3/23/10 1510 <u>Rec'd by:</u> Company: Alpha Analytical Date/Time: 3/23/10 1510		2) Released by: Company: Date/Time: <u>Rec'd by:</u> Company: Date/Time:		3) Released by: Company: Date/Time: <u>Rec'd by:</u> Company: Date/Time:		4) Released by: Company: Date/Time: <u>Rec'd by:</u> Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.		



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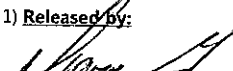

To be completed by Laboratory upon sample receipt:

Date of receipt:	3/23/10	Laboratory W.O. #:	L1003087
Condition upon receipt:	Satisfactory	Time of receipt:	15:00
Cooler temperature:	N/A	Received by:	

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Alpha Analytical		# LPR-AA-RB1
Attn:	Ellen Collins	Shipping Date:	_____
Shipper:	_____	Airbill Number:	_____
Form filled out by:	Ellen Collins/Diane Janak	Turnaround requested:	Standard


Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (Jar tag number(s))
					SVOCs (8270C)	PCB Aroclors (8082)	Alkylated PAHs (8270C)			
3/23/2010	16:30	LPR-032310-RB	6	Water	X	X	X			
Total Number of Containers			6	Purchase Order / Statement of Work # AA09_01LPR						
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Windward
environmental LLC

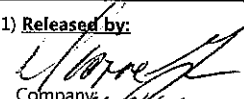
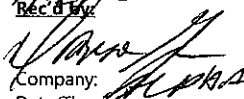
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Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 3/23/10	Laboratory W.O. #: L1003087
Condition upon receipt: SATISFACTORY	Time of receipt: 1640
Cooler temperature: N/A	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

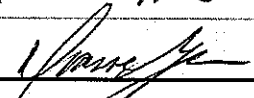
Project/Client Name: Passaic RI/FS Tissue To: Alpha Analytical # LPR-AA-MH-2A
 Project Number: 09.58.02.31 Attn: Ellen Collins Shipping Date:
 Contact Name: Jennifer Parker Shipper: Airbill Number:
 Sampled By: Windward Environmental LLC Form filled out by: Jennifer Parker Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
9/8/2009	09:50	LPR8-CSMH-Comp58	1	Tissue	X	X	X	X		
9/1/2009	14:04	LPR1-CSMH-Comp06	1	Tissue	X	X	X	X		
9/2/2009	16:33	LPR1-CSMH-Comp07	1	Tissue	X	X	X	X		
9/2/2009	12:49	LPR1-CSMH-Comp11	1	Tissue	X	X	X	X		
8/20/2009	13:03	LPR4-CSMH-Comp30	1	Tissue	X	X	X	X		WW Note: Correct collection date/time for LPR4-CSMH-Comp30 is 8/18/2009 at 11:41.
9/1/2009	12:49	LPR1-CSMH-Comp13	1	Tissue	X	X	X	X		
9/1/2009	12:09	LPR2-CSMH-Comp14	1	Tissue	X	X	X	X		
9/1/2009	11:03	LPR2-CSMH-Comp17	1	Tissue	X	X	X	X		
9/1/2009	10:02	LPR2-CSMH-Comp15	1	Tissue	X	X	X	X		
9/3/2009	12:35	LPR2-CSMH-Comp18	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: <u>Windward Environmental LLC</u> Date/Time: <u>4/12/10</u> Rec'd by:  Company: <u>Windward Environmental LLC</u> Date/Time: <u>4/12/10</u>		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		



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To be completed by Laboratory upon sample receipt:

Date of receipt: <u>4/12/10</u>	Laboratory W.O. #: <u>L1003087</u>
Condition upon receipt: <u>Satisfactory</u>	Time of receipt: <u>1100</u>
Cooler temperature: <u>N/A</u>	Received by: 

2 of 2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical** # LPR-AA-MH-2B
 Attn: **Ellen Collins** Shipping Date: _____
 Shipper: _____ Airbill Number: _____
 Form filled out by: **Jennifer Parker** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270D)		
9/1/2009	11:32	LPR2-CSMH-Comp19	1	Tissue	X	X	X	X		
9/1/2009	11:32	LPR2-CSMH-Comp20	1	Tissue	X	X	X	X		
8/11/2009	10:08	LPR3-CSMH-Comp24	1	Tissue	X	X	X	X		
8/21/2009	13:46	LPR5-CSMH-Comp35	1	Tissue	X	X	X	X		
8/12/2009	10:29	LPR3-CSMH-Comp26	1	Tissue	X	X	X	X		
8/18/2009	10:35	LPR4-CSMH-Comp32	1	Tissue	X	X	X	X		
8/18/2009	12:01	LPR4-CSMH-Comp33	1	Tissue	X	X	X	X		
8/11/2009	07:21	LPR3-CSMH-Comp27	1	Tissue	X	X	X	X		
8/13/2009	11:52	LPR3-CSMH-Comp28	1	Tissue	X	X	X	X		
8/21/2009	13:46	LPR5-CSMH-Comp35	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # AA09_01LPR						
1) Released By: Company: Alpha Date/Time: 4/12/10 Rec'd by: Company: Alpha Date/Time: 4/12/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		



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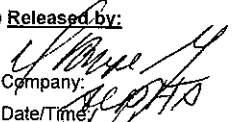
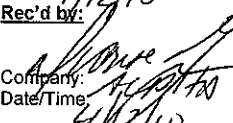
To be completed by Laboratory upon sample receipt:

Date of receipt: 4/12/10	Laboratory W.O. #: L1003087
Condition upon receipt: satisfactory	Time of receipt: 1100
Cooler temperature: N/A	Received by:

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

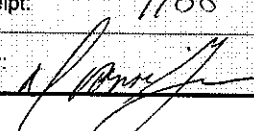
To: Alpha Analytical # LPR-AA-MH-2Brev
 Attn: Ellen Collins Shipping Date: _____
 Shipper: _____ Airbill Number: _____
 Form filled out by: Jennifer Parker Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]	
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270D)		
9/1/2009	11:32	LPR2-CSMH-Comp19	1	Tissue	X	X	X	X		
9/1/2009	11:32	LPR2-CSMH-Comp20	1	Tissue	X	X	X	X		
8/11/2009	10:08	LPR3-CSMH-Comp24	1	Tissue	X	X	X	X		
- 36 8/18/2009	07:43	LPR5-CSMH-Comp34	1	Tissue	X	X	X	X	Alpha ID L1003087-36	
8/12/2009	10:29	LPR3-CSMH-Comp26	1	Tissue	X	X	X	X		
8/18/2009	10:35	LPR4-CSMH-Comp32	1	Tissue	X	X	X	X		
8/18/2009	12:01	LPR4-CSMH-Comp33	1	Tissue	X	X	X	X		
8/11/2009	07:21	LPR3-CSMH-Comp27	1	Tissue	X	X	X	X		
8/13/2009	11:52	LPR3-CSMH-Comp28	1	Tissue	X	X	X	X		
8/21/2009	13:46	LPR5-CSMH-Comp35	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: <u>Windward Environmental LLC</u> Date/Time: <u>4/12/10</u> Rec'd by:  Company: <u>Windward Environmental LLC</u> Date/Time: <u>4/12/10</u>		2) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		3) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		4) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		5) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		



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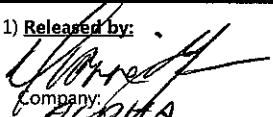
To be completed by Laboratory upon sample receipt:

Date of receipt: <u>4/12/10</u>	Laboratory W.O. #: <u>L1003087</u>
Condition upon receipt: <u>Satisfactory</u>	Time of receipt: <u>1100</u>
Cooler temperature: <u>N/A</u>	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Alpha Analytical		# LPR-AA-RB2
Attn:	Ellen Collins	Shipping Date:	NA
Shipper:	NA	Airbill Number:	NA
Form filled out by:	Ellen Collins/Diane Janak	Turnaround requested:	Standard


Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	PCB Aroclors (8082)	Alkylated PAHs (8270C)			
4/12/2010	10:40	LPR-041210-RB	6	Water	X	X	X			
Total Number of Containers			6	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: ACPHA Date/Time: 4/12/10 Rec'd by:		2) Released by: Company: Date/Time: Rec'd by:		3) Released by: Company: Date/Time: Rec'd by:		4) Released by: Company: Date/Time: Rec'd by:		NOTES		
Company: Date/Time:		Company: Date/Time:		Company: Date/Time:		Company: Date/Time:				



Windward
environmental LLC

200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

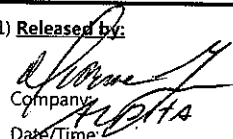
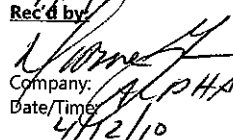
To be completed by Laboratory upon sample receipt:

Date of receipt: 4/12/10	Laboratory W.O. #: L1003087
Condition upon receipt: Satisfactory	Time of receipt: 1100
Cooler temperature: N/A	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled by: **Windward Environmental LLC**

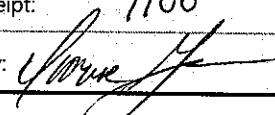
To: **Alpha Analytical** # LPR-AA-CT-A
 Attn: **Ellen Collins**
 Shipper: **—**
 Form filled out by: **Jennifer Parker**
 Shipping Date: **—**
 Airbill Number: **—**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Processing and homogenization	SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)	
8/20/2009	13:03	LPR4-CSCT-Comp31	1	Tissue	X	X	X	X	X	
9/1/2009	12:33	LPR1-CSCT-Comp01	1	Tissue	X	X	X	X	X	
9/2/2009	15:02	LPR1-CSCT-Comp02	1	Tissue	X	X	X	X	X	
9/2/2009	15:46	LPR1-CSCT-Comp03	1	Tissue	X	X	X	X	X	
9/2/2009	15:46	LPR1-CSCT-Comp04	1	Tissue	X	X	X	X	X	
9/1/2009	14:04	LPR1-CSCT-Comp06	1	Tissue	X	X	X	X	X	
9/2/2009	16:33	LPR1-CSCT-Comp07	1	Tissue	X	X	X	X	X	
9/2/2009	12:49	LPR1-CSCT-Comp11	1	Tissue	X	X	X	X	X	
8/18/2009	11:41	LPR4-CSCT-Comp30	1	Tissue	X	X	X	X	X	
9/1/2009	12:49	LPR1-CSCT-Comp13	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 24	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: ALPHA Date/Time: 4/12/10 Rec'd by:  Company: ALPHA Date/Time: 4/12/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		



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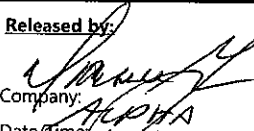
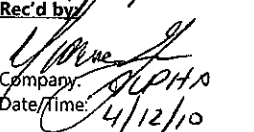
To be completed by Laboratory upon sample receipt:

Date of receipt: 4/12/10	Laboratory W.O. #: L1003161
Condition upon receipt: satisfactory	Time of receipt: 1100
Cooler temperature: N/A	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

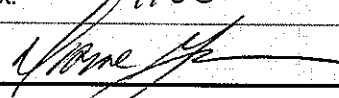
To: Alpha Analytical # LPR-AA-CT-B
 Attn: Ellen Collins Shipping Date: _____
 Shipper: _____ Airbill Number: _____
 Form filled out by: Jennifer Parker Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Processing and homogenization	SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270D)	
9/1/2009	12:09	LPR2-CSCT-Comp14	1	Tissue	X	X	X	X	X	
9/1/2009	11:03	LPR2-CSCT-Comp17	1	Tissue	X	X	X	X	X	
9/1/2009	10:02	LPR2-CSCT-Comp15	1	Tissue	X	X	X	X	X	
9/3/2009	12:35	LPR2-CSCT-Comp18	1	Tissue	X	X	X	X	X	
9/1/2009	11:32	LPR2-CSCT-Comp19	1	Tissue	X	X	X	X	X	
9/1/2009	11:32	LPR2-CSCT-Comp20	1	Tissue	X	X	X	X	X	
8/11/2009	10:08	LPR3-CSCT-Comp24	1	Tissue	X	X	X	X	X	
8/18/2009	07:43	LPR5-CSCT-Comp34	1	Tissue	X	X	X	X	X	
8/12/2009	10:29	LPR3-CSCT-Comp26	1	Tissue	X	X	X	X	X	
8/18/2009	10:35	LPR4-CSCT-Comp32	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 24	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>4/12/10</u> Rec'd by:  Company: <u>Alpha</u> Date/Time: <u>4/12/10</u>		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		



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To be completed by Laboratory upon sample receipt:

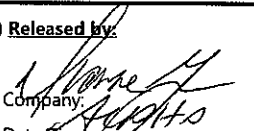
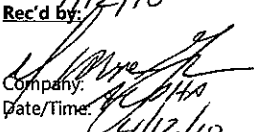
Date of receipt: <u>4/12/10</u>	Laboratory W.O. #: <u>L1003161</u>
Condition upon receipt: <u>Satisfactory</u>	Time of receipt: <u>1100</u>
Cooler temperature: <u>N/A</u>	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical** # LPR-AA-CT-C
 Attn: **Ellen Collins** Shipping Date: _____
 Shipper: _____ Airbill Number: _____
 Form filled out by: **Jennifer Parker** Turnaround requested: **Standard**

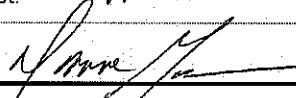
Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Processing and homogenization	SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270D)	
8/18/2009	12:01	LPR4-CSCT-Comp33	1	Tissue	X	X	X	X	X	
8/11/2009	07:21	LPR3-CSCT-Comp27	1	Tissue	X	X	X	X	X	
8/13/2009	11:52	LPR3-CSCT-Comp28	1	Tissue	X	X	X	X	X	
8/21/2009	13:46	LPR5-CSCT-Comp35	1	Tissue	X	X	X	X	X	
Total Number of Containers			4 of 24	Purchase Order / Statement of Work # AA09_01LPR						

1) Released by:  Company: Windward Environmental LLC Date/Time: 4/12/10 Rec'd by:  Company: Windward Environmental LLC Date/Time: 4/12/10	2) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____	3) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____	4) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____	5) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____
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 Seattle, WA 98119
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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 4/12/10	Laboratory W.O. #: L1003161
Condition upon receipt: Satisfactory	Time of receipt: 1100
Cooler temperature: N/A	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Alpha Analytical # LPR-AA-MT-A
 Attn: Ellen Collins
 Shipper: NA
 Form filled out by: Jennifer Parker/Dianne Janak
 Shipping Date: NA
 Airbill Number: NA
 Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)	
8/28/2009	8:50	LPR7-CSMT-Comp52	1	Tissue	X	X	X	X	
9/1/2009	14:04	LPR1-CSMT-Comp08	1	Tissue	X	X	X	X	
9/2/2009	12:08	LPR1-CSMT-Comp10	1	Tissue	X	X	X	X	
9/3/2009	12:00	LPR1-CSMT-Comp12	1	Tissue	X	X	X	X	
9/2/2009	12:26	LPR2-CSMT-Comp16	1	Tissue	X	X	X	X	
9/17/2009	11:27	LPR6-CSMT-Comp39	1	Tissue	X	X	X	X	
9/1/2009	11:46	LPR2-CSMT-Comp22	1	Tissue	X	X	X	X	
9/1/2009	11:07	LPR2-CSMT-Comp23	1	Tissue	X	X	X	X	
8/27/2009	06:50	LPR6-CSMT-Comp40	1	Tissue	X	X	X	X	
8/12/2009	09:24	LPR3-CSMT-Comp25	1	Tissue	X	X	X	X	
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # AA09_01LPR					

1) Released by: <u>[Signature]</u> Company: <u>Windward Environmental LLC</u> Date/Time: <u>4/14/10 1300</u> Rec'd by: <u>[Signature]</u> Company: <u>Windward Environmental LLC</u> Date/Time: <u>4/14/10 1300</u>	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.
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To be completed by Laboratory upon sample receipt:

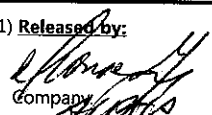
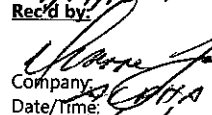
Date of receipt: <u>4/14/10</u>	Laboratory W.O. #: <u>21003164</u>
Condition upon receipt: <u>Satisfactory</u>	Time of receipt: <u>1309</u>
Cooler temperature: <u>N/A</u>	Received by: <u>[Signature]</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical** # LPR-AA-MT-B
 Attn: **Ellen Collins** Shipping Date: **NA**
 Shipper: **NA** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

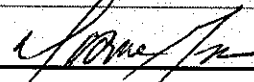
Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270D)		
8/27/2009	07:17	LPR6-CSMT-Comp43	1	Tissue	X	X	X	X		
8/15/2009	7:00	LPR3-CSMT-Comp29	1	Tissue	X	X	X	X		
8/20/2009	12:20	LPR5-CSMT-Comp36	1	Tissue	X	X	X	X		
8/26/2009	11:38	LPR7-CSMT-Comp47	1	Tissue	X	X	X	X		
8/27/2009	08:55	LPR7-CSMT-Comp51	1	Tissue	X	X	X	X		
9/9/2009	08:56	LPR8-CSMT-Comp59	1	Tissue	X	X	X	X		
9/9/2009	08:47	LPR8-CSMT-Comp60	1	Tissue	X	X	X	X		
9/10/2009	13:02	LPR8-CSMT-Comp62	1	Tissue	X	X	X	X		
9/1/2009	13:10	LPR1-CSMT-Comp05	1	Tissue	X	X	X	X		
9/3/2009	11:10	LPR1-CSMT-Comp09	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # AA09_01LPR						

1) Released by:  Company: Windward Environmental LLC Date/Time: 4/14/10 1300 Rec'd by:  Company: Windward Environmental LLC Date/Time: 4/14/10 1300	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.
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To be completed by Laboratory upon sample receipt:

Date of receipt: 4/14/10	Laboratory W.O. #: L1003164
Condition upon receipt: Satisfactory	Time of receipt: 1300
Cooler temperature: N/A	Received by: 

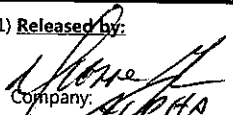
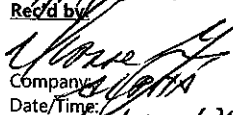
1 of 1

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical** # LPR-AA-HT-A
 Attn: **Ellen Collins** Shipping Date: **NA**
 Shipper: **NA** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

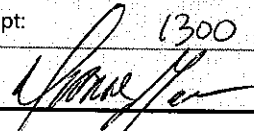
Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
9/1/2009	13:10	LPR1-CSHT-Comp05	1	Tissue	X	X	X	X		
9/1/2009	11:03	LPR2-CSHT-Comp63	1	Tissue	X	X	X	X		
9/3/2009	11:10	LPR1-CSHT-Comp09	1	Tissue	X	X	X	X		
8/11/2009	07:21	LPR3-CSHT-Comp64	1	Tissue	X	X	X	X		
9/2/2009	14:13	LPR2-CSHT-Comp21	1	Tissue	X	X	X	X		
8/25/2009	09:24	LPRX-CSHT-Comp65	1	Tissue	X	X	X	X		
9/8/2009	07:48	LPR8-CSHT-Comp66	1	Tissue	X	X	X	X		
Total Number of Containers			7	Purchase Order / Statement of Work # AA09_01LPR						

1) Released by:  Company: ALPHA Date/Time: 4/14/10 1300 Rec'd by:  Company: ALPHA Date/Time: 4/14/10 1300	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.
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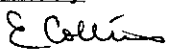

To be completed by Laboratory upon sample receipt:

Date of receipt: 4/14/10	Laboratory W.O. #: L1004936
Condition upon receipt: Satisfactory	Time of receipt: 1300
Cooler temperature: N/A	Received by: 


CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Alpha Analytical COC reference: # LPR-AA-CATF-A
 Attn: Ellen Collins Shipping Date: NA
 Shipper: NA Airbill Number: NA
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
9/12/2009	9:35	LPR8-WSFT-Ind009	1	Tissue	X	X	X	X		
9/12/2009	11:16	LPR8-WSFT-Ind013	1	Tissue	X	X	X	X		
9/15/2009	8:34	LPR5-WSFT-Ind019	1	Tissue	X	X	X	X		
9/18/2009	11:57	LPR5-WSFT-Ind020	1	Tissue	X	X	X	X		
9/18/2009	14:10	LPR4-WSFT-Ind023	1	Tissue	X	X	X	X		
8/18/2009	8:15	LPR5-IPFT-Ind001	1	Tissue	X	X	X	X		
8/25/2009	7:17	LPR6-IPFT-Ind003	1	Tissue	X	X	X	X		
8/26/2009	8:29	LPR6-IPFT-Ind004	1	Tissue	X	X	X	X		
8/26/2009	10:18	LPR7-IPFT-Ind005	1	Tissue	X	X	X	X		
8/27/2009	9:34	LPR7-IPFT-Ind006	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: Alpha Date/Time: 7/8/10 12:00 Rec'd by:  Company: Alph Date/Time: 7/8/10 12:00		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>7.8.2010</u>	Laboratory W.O. #: <u>L1007319</u>
Condition upon receipt: <u>satisfactory</u>	Time of receipt: <u>12:00</u>
Cooler temperature: <u>N/A</u>	Received by: 

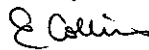



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 Fax: (206) 217-9343

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical** COC reference: **# LPR-AA-CATF-B**
 Attn: **Ellen Collins** Shipping Date: **NA**
 Shipper: **NA** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
9/9/2009	9:15	LPR8-IPFT-Ind008	1	Tissue	X	X	X	X		
9/9/2009	9:15	LPR8-IPFT-Ind009	1	Tissue	X	X	X	X		
9/10/2009	13:02	LPR8-IPFT-Ind010	1	Tissue	X	X	X	X		
9/10/2009	13:02	LPR8-IPFT-Ind011	1	Tissue	X	X	X	X		
9/10/2009	13:02	LPR8-IPFT-Ind012	1	Tissue	X	X	X	X		
9/10/2009	13:02	LPR8-IPFT-Ind013	1	Tissue	X	X	X	X		
8/11/2009	11:08	LPR3-ACFT-Ind001	1	Tissue	X	X	X	X		
8/11/2009	11:30	LPR3-ACFT-Ind002	1	Tissue	X	X	X	X		
8/13/2009	10:26	LPR3-ACFT-Ind003	1	Tissue	X	X	X	X		
8/14/2009	9:04	LPR3-ACFT-Ind005	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: Alpha Date/Time: 7/8/10 1200 Rec'd by:  Company: Alpha Date/Time: 7/8/10 1200		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:



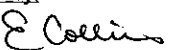
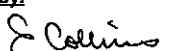
200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt: 7/8/2010	Laboratory W.O. #: L1007319
Condition upon receipt: satisfactory	Time of receipt: 12:00
Cooler temperature: N/A	Received by: E. Collins

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical**
 Attn: **Ellen Collins**
 Shipper: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference: **# LPR-AA-CATF-C**
 Shipping Date: **NA**
 Airbill Number: **NA**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
8/19/2009	10:51	LPR5-ACFT-Ind006	1	Tissue	X	X	X	X		
8/25/2009	8:25	LPR6-ACFT-Ind008	1	Tissue	X	X	X	X		
8/25/2009	8:25	LPR6-ACFT-Ind009	1	Tissue	X	X	X	X		
8/26/2009	7:55	LPR6-ACFT-Ind010	1	Tissue	X	X	X	X		
8/27/2009	7:27	LPR6-ACFT-Ind013	1	Tissue	X	X	X	X		
8/27/2009	9:48	LPR7-ACFT-Ind014	1	Tissue	X	X	X	X		
8/29/2009	11:11	LPR6-ACFT-Ind016	1	Tissue	X	X	X	X		
8/29/2009	12:06	LPR7-ACFT-Ind017	1	Tissue	X	X	X	X		
9/2/2009	14:13	LPR2-ACFT-Ind018	1	Tissue	X	X	X	X		
9/8/2009	8:04	LPR8-ACFT-Ind019	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: Alpha Date/Time: 7/8/10 1200 Rec'd by:  Company: Alpha Date/Time: 7/8/10 1200		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:

Date of receipt: 7-8-2010	Laboratory W.O. #: L1007319
Condition upon receipt: satisfactory	Time of receipt: 12:00
Cooler temperature: N/A	Received by: E. Collins



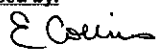

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CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical**
 Attn: **Ellen Collins**
 Shipper: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference: **# LPR-AA-CATF-D**
 Shipping Date: **NA**
 Airbill Number: **NA**
 Turnaround requested: **Standard**

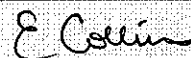
Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
9/8/2009	8:44	LPR8-ACFT-Ind020	1	Tissue	X	X	X	X		
9/8/2009	8:44	LPR8-ACFT-Ind021	1	Tissue	X	X	X	X		
9/10/2009	13:02	LPR8-ACFT-Ind022	1	Tissue	X	X	X	X		
9/17/2009	11:05	LPR4-ACFT-Ind023	1	Tissue	X	X	X	X		
9/18/2009	11:15	LPR5-ACFT-Ind024	1	Tissue	X	X	X	X		
Total Number of Containers			5 of 35	Purchase Order / Statement of Work # AA09_01LPR						

1) Released by:  Company: Alpha Date/Time: 7/8/10 1200 Rec'd by:  Company: Alpha Date/Time: 7/8/10 1200	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 7-8-2010	Laboratory W.O. #: L1007319
Condition upon receipt: satisfactory	Time of receipt: 12:00
Cooler temperature: NA	Received by: 

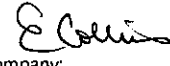

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical**
 Attn: **Ellen Collins**
 Shipper: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak**

COC reference: **# LPR-AA-CATC-A**
 Shipping Date: **NA**
 Airbill Number: **NA**
 Turnaround requested: **Standard**

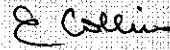
Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)	
9/12/2009	9:35	LPR8-WSCT-Ind009	1	Tissue	X	X	X	X	
9/12/2009	11:16	LPR8-WSCT-Ind013	1	Tissue	X	X	X	X	
9/15/2009	8:34	LPR5-WSCT-Ind019	1	Tissue	X	X	X	X	
9/18/2009	11:57	LPR5-WSCT-Ind020	1	Tissue	X	X	X	X	
9/18/2009	14:10	LPR4-WSCT-Ind023	1	Tissue	X	X	X	X	
8/18/2009	8:15	LPR5-IPCT-Ind001	1	Tissue	X	X	X	X	
8/25/2009	7:17	LPR6-IPCT-Ind003	1	Tissue	X	X	X	X	
8/26/2009	8:29	LPR6-IPCT-Ind004	1	Tissue	X	X	X	X	
8/26/2009	10:18	LPR7-IPCT-Ind005	1	Tissue	X	X	X	X	
8/27/2009	9:34	LPR7-IPCT-Ind006	1	Tissue	X	X	X	X	
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AA09_01LPR					

1) Released by:  Company: Alpha Date/Time: 7/8/10 12:10 Rec'd by:  Company: Alpha Date/Time: 7/8/10 12:10	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 7.8.2010	Laboratory W.O. #: L1007320
Condition upon receipt: satisfactory	Time of receipt: 12:10
Cooler temperature: N/A	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Alpha Analytical COC reference: # LPR-AA-CATC-B
 Attn: Ellen Collins Shipping Date: NA
 Shipper: NA Airbill Number: NA
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)	
9/9/2009	9:15	LPR8-IPCT-Ind008	1	Tissue	X	X	X	X	
9/9/2009	9:15	LPR8-IPCT-Ind009	1	Tissue	X	X	X	X	
9/10/2009	13:02	LPR8-IPCT-Ind010	1	Tissue	X	X	X	X	
9/10/2009	13:02	LPR8-IPCT-Ind011	1	Tissue	X	X	X	X	
9/10/2009	13:02	LPR8-IPCT-Ind012	1	Tissue	X	X	X	X	
9/10/2009	13:02	LPR8-IPCT-Ind013	1	Tissue	X	X	X	X	
8/11/2009	11:08	LPR3-ACCT-Ind001	1	Tissue	X	X	X	X	
8/11/2009	11:30	LPR3-ACCT-Ind002	1	Tissue	X	X	X	X	
8/13/2009	10:26	LPR3-ACCT-Ind003	1	Tissue	X	X	X	X	
8/14/2009	9:04	LPR3-ACCT-Ind005	1	Tissue	X	X	X	X	
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AA09_01LPR					

1) Released by: E Collins
 Company: Alpha
 Date/Time: 7/18/10 1210
 Rec'd by: E Collins
 Company: Alpha
 Date/Time: 7/18/10 1210

2) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

3) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

NOTES
 Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).



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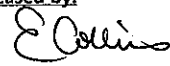

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>7-8-2010</u>	Laboratory W.O. #: <u>L1007320</u>
Condition upon receipt: <u>Satisfactory</u>	Time of receipt: <u>12:10</u>
Cooler temperature: <u>NA</u>	Received by: <u>E Collins</u>

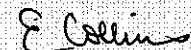
CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical**
 Attn: **Ellen Collins**
 Shipper: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference: **# LPR-AA-CATC-C**
 Shipping Date: **NA**
 Airbill Number: **NA**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
8/19/2009	10:51	LPR5-ACCT-Ind006	1	Tissue	X	X	X	X		
8/25/2009	8:25	LPR6-ACCT-Ind008	1	Tissue	X	X	X	X		
8/25/2009	8:25	LPR6-ACCT-Ind009	1	Tissue	X	X	X	X		
8/26/2009	7:55	LPR6-ACCT-Ind010	1	Tissue	X	X	X	X		
8/27/2009	7:27	LPR6-ACCT-Ind013	1	Tissue	X	X	X	X		
8/27/2009	9:48	LPR7-ACCT-Ind014	1	Tissue	X	X	X	X		
8/29/2009	11:11	LPR6-ACCT-Ind016	1	Tissue	X	X	X	X		
8/29/2009	12:06	LPR7-ACCT-Ind017	1	Tissue	X	X	X	X		
9/2/2009	14:13	LPR2-ACCT-Ind018	1	Tissue	X	X	X	X		
9/8/2009	8:04	LPR8-ACCT-Ind019	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: Alpha Date/Time: 7/8/10 12:10 Rec'd by:  Company: Alpha Date/Time: 7/8/10 12:10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:

Date of receipt: 7.8.2010	Laboratory W.O. #: L1007320
Condition upon receipt: satisfactory	Time of receipt: 12:10
Cooler temperature: N/A	Received by: 



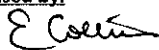

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CHAIN-OF-CUSTODY/TEST REQUEST FORM

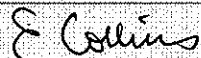
Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical**
 Attn: **Ellen Collins**
 Shipper: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference: **# LPR-AA-CATC-D**
 Shipping Date: **NA**
 Airbill Number: **NA**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [for tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
9/8/2009	8:44	LPR8-ACCT-Ind020	1	Tissue	X	X	X	X		
9/8/2009	8:44	LPR8-ACCT-Ind021	1	Tissue	X	X	X	X		
9/10/2009	13:02	LPR8-ACCT-Ind022	1	Tissue	X	X	X	X		
9/17/2009	11:05	LPR4-ACCT-Ind023	1	Tissue	X	X	X	X		
9/18/2009	11:15	LPR5-ACCT-Ind024	1	Tissue	X	X	X	X		
Total Number of Containers			5 of 35	Purchase Order / Statement of Work # AA09_01LPR						

1) Released by:  Company: Alpha Date/Time: 7/8/10 12:10 Rec'd by:  Company: Alpha Date/Time: 7/8/10 12:10	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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To be completed by Laboratory upon sample receipt:

Date of receipt: 7.8.2010	Laboratory W.O. #: L1007320
Condition upon receipt: satisfactory	Time of receipt: 12:10
Cooler temperature: N/A	Received by: 

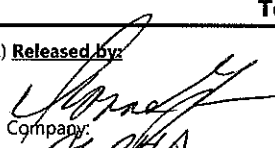
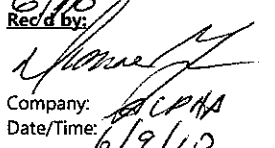


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CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

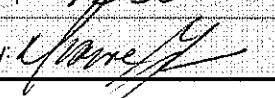
To: Alpha Analytical COC reference # LPR-AA-PI-A
 Attn: Ellen Collins Shipping Date: NA
 Shipper: NA Airbill Number: NA
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
8/25/2009	9:54	LPR6-ELFT-Ind001	1	Tissue	X	X	X	X		
9/19/2009	9:35	LPR5-MSFT-Comp01	1	Tissue	X	X	X	X		
9/8/2009	10:09	LPR8-MSFT-Ind002	1	Tissue	X	X	X	X		
9/18/2009	10:35	LPR5-MSFT-Ind009	1	Tissue	X	X	X	X		
9/18/2009	13:50	LPR4-MDFT-Comp01	1	Tissue	X	X	X	X		
9/18/2009	10:35	LPR5-MDFT-Comp02	1	Tissue	X	X	X	X		
9/10/2009	8:40	LPR8-MDFT-Comp03	1	Tissue	X	X	X	X		
8/25/2009	9:54	LPR6-ELCT-Ind001	1	Tissue	X	X	X	X		
9/19/2009	9:35	LPR5-MSCT-Comp01	1	Tissue	X	X	X	X		
9/8/2009	10:09	LPR8-MSCT-Ind002	1	Tissue	X	X	X	X		
Total Number of Containers			10	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>6/9/10</u> Rec'd by:  Company: <u>Alpha</u> Date/Time: <u>6/9/10</u>		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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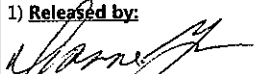

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>6/9/10</u>	Laboratory W.O. #: <u>L1007321</u>
Condition upon receipt: <u>Satisfactory</u>	Time of receipt: <u>15:30</u>
Cooler temperature: <u>N/A</u>	Received by: 

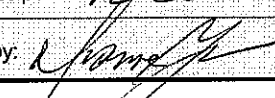
CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical** COC reference: **# LPR-AA-PI-B**
 Attn: **Ellen Collins** Shipping Date: **NA**
 Shipper: **NA** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
9/18/2009	10:35	LPR5-MSCT-Ind009	1	Tissue	X	X	X	X		
9/18/2009	13:50	LPR4-MDCT-Comp01	1	Tissue	X	X	X	X		
9/18/2009	10:35	LPR5-MDCT-Comp02	1	Tissue	X	X	X	X		
9/10/2009	8:40	LPR8-MDCT-Comp03	1	Tissue	X	X	X	X		
Total Number of Containers			4	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: ALPHA Date/Time: 6/9/10 Rec'd by:  Company: ALPHA Date/Time: 6/9/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:

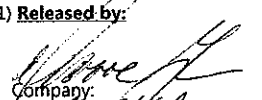
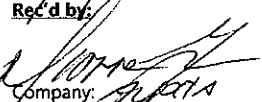
Date of receipt: 6/9/10	Laboratory W.O. #: L1007321
Condition upon receipt: Satisfactory	Time of receipt: 15:30
Cooler temperature: NA	Received by: 



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 Fax: (206) 217-9343

CHAIN-OF-CUSTODY/TEST REQUEST FORM

To:	Alpha Analytical	COC reference	# LPR-AA-RB3
Attn:	Ellen Collins	Shipping Date:	
Shipper:		Airbill Number:	
Form filled out by:	Jennifer Parker/Ellen Collins	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
6/8/2010	13:30	LPR-060810-RB	6	Water	X	X	X	X		
Total Number of Containers			6	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: ALPHA Date/Time: 6/8/10 1435 Rec'd by:  Company: ALPHA Date/Time: 6/8/10 1435		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES				

To be completed by Laboratory upon sample receipt:



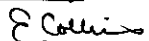
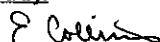
200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

Date of receipt:	6/8/10	Laboratory W.O. #:	L1007321
Condition upon receipt:	Satisfactory	Time of receipt:	1435
Cooler temperature:	N/A	Received by:	[Signature]

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

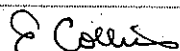
To: **Alpha Analytical** COC reference: **# LPR-AA-WB-A**
 Attn: **Ellen Collins** Shipping Date: **NA**
 Shipper: **NA** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
8/11/2009	9:25	LPR3-CCWB-Ind002	1	Tissue	X	X	X	X		
8/15/2009	8:50	LPR3-CCWB-Ind005	1	Tissue	X	X	X	X		
8/19/2009	10:03	LPR5-CCWB-Ind011	1	Tissue	X	X	X	X		
8/25/2009	7:30	LPR6-CCWB-Ind021	1	Tissue	X	X	X	X		
8/25/2009	8:43	LPR6-CCWB-Ind028	1	Tissue	X	X	X	X		
8/25/2009	11:33	LPR7-CCWB-Ind042	1	Tissue	X	X	X	X		
8/27/2009	9:01	LPR7-CCWB-Ind069	1	Tissue	X	X	X	X		
9/12/2009	7:58	LPR8-CCWB-Ind139	1	Tissue	X	X	X	X		
9/12/2009	10:57	LPR8-CCWB-Ind147	1	Tissue	X	X	X	X		
9/18/2009	10:35	LPR5-CCWB-Ind160	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 18	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: Alpha Date/Time: 6/16/10 1530 Rec'd by:  Company: Alpha Date/Time: 6/16/10 1530		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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To be completed by Laboratory upon sample receipt:

Date of receipt: 6.16.2010	Laboratory W.O. #: L1007344
Condition upon receipt: satisfactory	Time of receipt: 1530
Cooler temperature: N/A	Received by: 

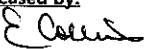
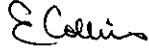
2 of 2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Alpha Analytical COC reference: # LPR-AA-WB-B
 Attn: Ellen Collins Shipping Date: NA
 Shipper: NA Airbill Number: NA
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

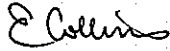
Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
9/18/2009	13:50	LPR4-CCWB-Ind175	1	Tissue	X	X	X	X		
9/19/2009	12:10	LPR4-CCWB-Ind186	1	Tissue	X	X	X	X		
8/12/2009	9:27	LPR3-ANWB-Ind001	1	Tissue	X	X	X	X		
8/28/2009	8:05	LPR6-ANWB-Ind004	1	Tissue	X	X	X	X		
9/16/2009	10:08	LPR4-ANWB-Ind007	1	Tissue	X	X	X	X		
8/28/2009	7:24	LPR6-ANWB-Ind003	1	Tissue	X	X	X	X		
8/29/2009	11:01	LPR6-ANWB-Ind005	1	Tissue	X	X	X	X		
8/29/2009	11:44	LPR7-ANWB-Ind006	1	Tissue	X	X	X	X		
Total Number of Containers			8 of 18	Purchase Order / Statement of Work # AA09_01LPR						

1) Released by:  Company: <u>Alpha</u> Date/Time: <u>6/16/10 1530</u> Rec'd by:  Company: <u>Alpha</u> Date/Time: <u>6/16/10 1530</u>	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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To be completed by Laboratory upon sample receipt:

Date of receipt: <u>6.16.2010</u>	Laboratory W.O. #: <u>L1007344</u>
Condition upon receipt: <u>satisfactory</u>	Time of receipt: <u>1530</u>
Cooler temperature: <u>N/A</u>	Received by: 

1 of 1

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Alpha Analytical COC reference: # LPR-AA-RB5
 Attn: Ellen Collins Shipping Date: NA
 Shipper: NA Airbill Number: NA
 Form filled out by: Jennifer Parker/Ellen Collins Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
6/29/2010	10:40	LPR-062910-RB	6	Water	X	X	X	X		
Total Number of Containers			6	Purchase Order / Statement of Work # AA09_01LPR						

1) Released by: <u>E Collins</u> Company: <u>Alpha</u> Date/Time: <u>6/29/10 1430</u> Rec'd by: <u>E Collins</u> Company: <u>Alpha</u> Date/Time: <u>6/29/10 14:30</u>	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES



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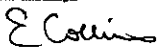
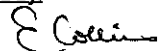
To be completed by Laboratory upon sample receipt:

Date of receipt: <u>6.29.2010</u>	Laboratory W.O. #: <u>L1007344</u>
Condition upon receipt: <u>satisfactory</u>	Time of receipt: <u>14:30</u>
Cooler temperature: <u>N/A</u>	Received by: <u>E Collins</u>

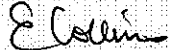
CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical** COC reference: **# LPR-AA-CF-A**
 Attn: **Ellen Collins** Shipping Date: **NA**
 Shipper: **NA** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
8/11/2009	9:25	LPR3-CCFT-Ind001	1	Tissue	X	X	X	X		
8/15/2009	8:50	LPR3-CCFT-Ind004	1	Tissue	X	X	X	X		
8/25/2009	9:54	LPR6-CCFT-Ind032	1	Tissue	X	X	X	X		
8/27/2009	9:01	LPR7-CCFT-Ind068	1	Tissue	X	X	X	X		
8/28/2009	9:32	LPR7-CCFT-Ind092	1	Tissue	X	X	X	X		
8/29/2009	8:10	LPR6-CCFT-Ind104	1	Tissue	X	X	X	X		
9/8/2009	7:48	LPR8-CCFT-Ind121	1	Tissue	X	X	X	X		
9/9/2009	9:15	LPR8-CCFT-Ind131	1	Tissue	X	X	X	X		
9/17/2009	10:49	LPR4-CCFT-Ind155	1	Tissue	X	X	X	X		
9/17/2009	11:05	LPR4-CCFT-Ind156	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 12	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: Alpha Date/Time: 6/16/10 1515 Rec'd by:  Company: Alpha Date/Time: 6/16/10 1515		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:

Date of receipt: 6-16-2010	Laboratory W.O. #: L1009346
Condition upon receipt: satisfactory	Time of receipt: 15:15
Cooler temperature: N/A	Received by: 



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CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical** COC reference: **# LPR-AA-CF-B**
 Attn: **Ellen Collins** Shipping Date: **NA**
 Shipper: **NA** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
9/19/2009	11:00	LPR5-CCFT-Ind181	1	Tissue	X	X	X	X		
9/19/2009	11:33	LPR5-CCFT-Ind184	1	Tissue	X	X	X	X		
Total Number of Containers			2 of 12	Purchase Order / Statement of Work # AA09_01LPR						

1) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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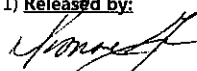
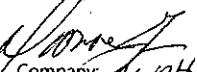
To be completed by Laboratory upon sample receipt:

Date of receipt: 6.16.2010	Laboratory W.O. #: L1007346
Condition upon receipt: satisfactory	Time of receipt: 15:15
Cooler temperature: N/A	Received by: E Collins

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

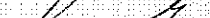
To:	Alpha Analytical	COC reference	# LPR-AA-RB4
Attn:	Ellen Collins	Shipping Date:	NA
Shipper:	NA	Airbill Number:	NA
Form filled out by:	Jennifer Parker/Ellen Collins	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
6/15/2010	14:15	LPR-061510-RB	6	Water	X	X	X	X		
Total Number of Containers			6	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: ALPHA Date/Time: 6/15/10 1450 Rec'd by:  Company: ALPHA Date/Time: 6/15/10 1450		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES				



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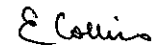

To be completed by Laboratory upon sample receipt:

Date of receipt:	6/15/10	Laboratory W.O. #:	L1007346
Condition upon receipt:	Satisfactory	Time of receipt:	1450
Cooler temperature:	N/A	Received by:	

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

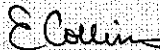
To: **Alpha Analytical** COC reference: **# LPR-AA-PERWB-A**
 Attn: **Ellen Collins** Shipping Date: **NA**
 Shipper: **NA** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
9/2/2009	15:46	LPR1-MACT-Ind145	1	Tissue	X	X	X	X		
8/11/2009	7:21	LPR3-MAWB-Comp06	1	Tissue	X	X	X	X		
8/13/2009	11:52	LPR3-MAWB-Comp09	1	Tissue	X	X	X	X		
8/13/2009	11:52	LPR3-MAWB-Comp10	1	Tissue	X	X	X	X		
8/13/2009	11:52	LPR3-MAWB-Comp11	1	Tissue	X	X	X	X		
8/13/2009	11:52	LPR3-MAWB-Comp12	1	Tissue	X	X	X	X		
8/13/2009	11:52	LPR3-MAWB-Comp30	1	Tissue	X	X	X	X		
8/25/2009	11:09	LPR7-MAWB-Ind123	1	Tissue	X	X	X	X		
8/26/2009	10:37	LPR7-MAWB-Comp25	1	Tissue	X	X	X	X		
8/27/2009	6:56	LPR6-MAWB-Ind128	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: Alpha Date/Time: 7/13/10 1400 Rec'd by:  Company: Alpha Date/Time: 7/13/10 1400		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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To be completed by Laboratory upon sample receipt:

Date of receipt: 7-13-2010	Laboratory W.O. #: L1009351
Condition upon receipt: satisfactory	Time of receipt: 14:00
Cooler temperature: N/A	Received by: 

2 of 2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical** COC reference: **# LPR-AA-PERWB-B**
 Attn: **Ellen Collins** Shipping Date: **NA**
 Shipper: **NA** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
9/1/2009	12:59	LPR1-MAWB-Ind138	1	Tissue	X	X	X	X		
9/4/2009	11:25	LPR2-MAWB-Ind158	1	Tissue	X	X	X	X		
9/7/2009	13:15	LPR8-MAWB-Comp32	1	Tissue	X	X	X	X		
9/12/2009	9:35	LPR8-MAWB-Comp28	1	Tissue	X	X	X	X		
9/12/2009	9:35	LPR8-MAWB-Comp29	1	Tissue	X	X	X	X		
9/15/2009	9:23	LPR4-MAWB-Comp14	1	Tissue	X	X	X	X		
9/17/2009	9:52	LPR5-MAWB-Comp19	1	Tissue	X	X	X	X		
9/17/2009	10:04	LPR5-MAWB-Comp18	1	Tissue	X	X	X	X		
9/18/2009	11:57	LPR5-MAWB-Comp23	1	Tissue	X	X	X	X		
9/18/2009	13:19	LPR4-MAWB-Comp15	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by: <i>E Collins</i> Company: Alpha Date/Time: 7/13/10 1400 Rec'd by: <i>E Collins</i> Company: Alpha Date/Time: 7/13/10 1400		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt: 7-13-20	Laboratory W.O. #: L1009354
Condition upon receipt: satisfactory	Time of receipt: 14:00
Cooler temperature: N/A	Received by: E Collins

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31 (Task 16.1)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical** COC reference: **# LPR-AA-RB6**
 Attn: **Ellen Collins** Shipping Date: **NA**
 Shipper: **NA** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker /Ellen Collins** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (for tag number(s))
					SVOCs (8270C)	PCB Aroclors (8082)	Alkylated PAHs (8270C)			
07/13/10	8:15	LPR-071310-RB	6	Water	X	X	X			
Total Number of Containers			6	Purchase Order / Statement of Work # AA09_01LPR						

1) Released by: <i>E Collins</i> Company: <i>Alpha</i> Date/Time: <i>7/13/10 900</i> Rec'd by: <i>E Collins</i> Company: <i>Alpha</i> Date/Time: <i>7/13/10 900</i>	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES



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 Fax: (206) 217-9343

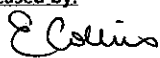

To be completed by Laboratory upon sample receipt:

Date of receipt: <i>7.13.2010</i>	Laboratory W.O. #: <i>L1009354</i>
Condition upon receipt: <i>satisfactory</i>	Time of receipt: <i>9:00</i>
Cooler temperature: <i>N/A</i>	Received by: <i>E Collins</i>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

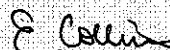
To: **Alpha Analytical** COC reference: **# LPR-AA-PERF-A**
 Attn: **Ellen Collins** Shipping Date: **NA**
 Shipper: **NA** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
8/11/2009	9:56	LPR3-MAFT-Comp02		Tissue	X	X	X	X		
8/11/2009	10:08	LPR3-MAFT-Comp03		Tissue	X	X	X	X		
8/12/2009	9:24	LPR3-MAFT-Comp04		Tissue	X	X	X	X		
8/13/2009	10:00	LPR3-MAFT-Comp05		Tissue	X	X	X	X		
8/13/2009	11:52	LPR3-MAFT-Comp07		Tissue	X	X	X	X		
8/13/2009	11:52	LPR3-MAFT-Comp08		Tissue	X	X	X	X		
8/14/2009	8:44	LPR3-MAFT-Comp13		Tissue	X	X	X	X		
8/25/2009	7:30	LPR6-MAFT-Comp24		Tissue	X	X	X	X		
8/25/2009	9:54	LPR6-MAFT-Ind122		Tissue	X	X	X	X		
9/1/2009	13:10	LPR1-MAFT-Comp01		Tissue	X	X	X	X		
Total Number of Containers			10 of 19	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: Alpha Date/Time: 7/13/10 1400 Rec'd by:  Company: Alpha Date/Time: 7/13/10 1400		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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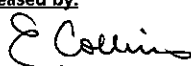

To be completed by Laboratory upon sample receipt:

Date of receipt: 7.13.2010	Laboratory W.O. #: L1009360
Condition upon receipt: satisfactory	Time of receipt: 14:00
Cooler temperature: N/A	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

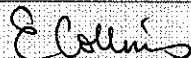
To: **Alpha Analytical**
 Attn: **Ellen Collins**
 Shipper: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference: **# LPR-AA-PERF-B**
 Shipping Date: **NA**
 Airbill Number: **NA**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
9/10/2009	8:38	LPR8-MAFT-Comp26	1	Tissue	X	X	X	X		
9/10/2009	9:30	LPR8-MAFT-Comp31	1	Tissue	X	X	X	X		
9/12/2009	9:35	LPR8-MAFT-Comp27	1	Tissue	X	X	X	X		
9/18/2009	10:35	LPR5-MAFT-Comp20	1	Tissue	X	X	X	X		
9/18/2009	10:35	LPR5-MAFT-Comp21	1	Tissue	X	X	X	X		
9/18/2009	11:57	LPR5-MAFT-Comp22	1	Tissue	X	X	X	X		
9/18/2009	13:50	LPR4-MAFT-Comp16	1	Tissue	X	X	X	X		
9/18/2009	14:10	LPR4-MAFT-Comp17	1	Tissue	X	X	X	X		
9/2/2009	15:46	LPR1-MAFT-Ind145	1	Tissue	X	X	X	X		
Total Number of Containers			9 of 19	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: Alpha Date/Time: 7/13/10 1400 Rec'd by:  Company: Alpha Date/Time: 7/13/10 1400		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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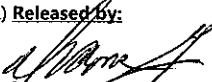
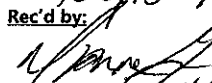
To be completed by Laboratory upon sample receipt:

Date of receipt: 7.13.2010	Laboratory W.O. #: L1009360
Condition upon receipt: satisfactory	Time of receipt: 14:00
Cooler temperature: N/A	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

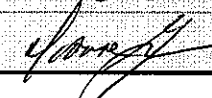
To: **Alpha Analytical**
 Attn: **Ellen Collins**
 Shipper: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference # **LPR-AA-EELF-A**
 Shipping Date: **NA**
 Airbill Number: **NA**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
8/11/2009	8:00	LPR3-ARFT-Comp20	1	Tissue	X	X	X	X		
8/11/2009	8:50	LPR3-ARFT-Comp06	1	Tissue	X	X	X	X		
8/11/2009	9:13	LPR3-ARFT-Ind005	1	Tissue	X	X	X	X		
8/11/2009	11:08	LPR3-ARFT-Comp05	1	Tissue	X	X	X	X		
8/12/2009	9:00	LPR3-ARFT-Ind010	1	Tissue	X	X	X	X		
8/12/2009	12:28	LPR3-ARFT-Ind014	1	Tissue	X	X	X	X		
8/18/2009	8:05	LPR5-ARFT-Comp09	1	Tissue	X	X	X	X		
8/18/2009	8:15	LPR5-ARFT-Ind021	1	Tissue	X	X	X	X		
8/18/2009	8:42	LPR4-ARFT-Ind022	1	Tissue	X	X	X	X		
8/18/2009	12:30	LPR4-ARFT-Ind026	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: Windward Environmental LLC Date/Time: 7/20/10 1645 Rec'd by:  Company: Alpha Analytical Date/Time: 7/20/10 1645		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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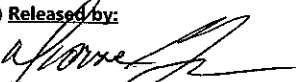
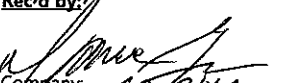
To be completed by Laboratory upon sample receipt:

Date of receipt: 7/20/10	Laboratory W.O. #: L1009361
Condition upon receipt: Satisfactory	Time of receipt: 1645
Cooler temperature: N/A	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

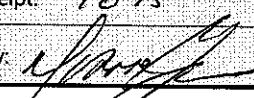
To: **Alpha Analytical** COC reference: **# LPR-AA-EELF-B**
 Attn: **Ellen Collins** Shipping Date: **NA**
 Shipper: **NA** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
8/19/2009	10:43	LPR5-ARFT-Comp12	1	Tissue	X	X	X	X		
8/19/2009	10:51	LPR5-ARFT-Ind030	1	Tissue	X	X	X	X		
8/19/2009	12:44	LPR4-ARFT-Comp07	1	Tissue	X	X	X	X		
8/19/2009	12:44	LPR4-ARFT-Ind034	1	Tissue	X	X	X	X		
8/20/2009	11:59	LPR5-ARFT-Comp10	1	Tissue	X	X	X	X		
8/20/2009	12:25	LPR5-ARFT-Ind040	1	Tissue	X	X	X	X		
8/20/2009	13:39	LPR4-ARFT-Comp08	1	Tissue	X	X	X	X		
8/20/2009	14:42	LPR4-ARFT-Ind044	1	Tissue	X	X	X	X		
8/21/2009	11:56	LPR5-ARFT-Ind049	1	Tissue	X	X	X	X		
8/21/2009	12:09	LPR5-ARFT-Ind048	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: Alpha Date/Time: 7/20/10 1645 Rec'd by:  Company: Alpha Date/Time: 7/20/10 1645		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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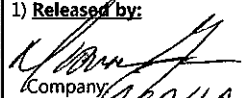
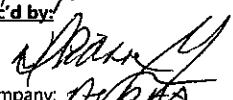
To be completed by Laboratory upon sample receipt:

Date of receipt: 7/20/10	Laboratory W.O. #: 21009361
Condition upon receipt: Satisfactory	Time of receipt: 1645
Cooler temperature: N/A	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

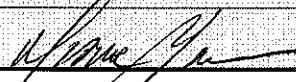
To: **Alpha Analytical**
 Attn: **Ellen Collins**
 Shipper: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference: **# LPR-AA-EELF-C**
 Shipping Date: **NA**
 Airbill Number: **NA**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
8/25/2009	9:25	LPR6-ARFT-Ind065	1	Tissue	X	X	X	X		
8/27/2009	11:08	LPR7-ARFT-Ind071	1	Tissue	X	X	X	X		
8/29/2009	8:27	LPR6-ARFT-Ind073	1	Tissue	X	X	X	X		
9/1/2009	12:55	LPR1-ARFT-Comp01	1	Tissue	X	X	X	X		
9/2/2009	15:29	LPR1-ARFT-Comp02	1	Tissue	X	X	X	X		
9/5/2009	15:15	LPR5-ARFT-Ind086	1	Tissue	X	X	X	X		
9/8/2009	12:32	LPR8-ARFT-Comp17	1	Tissue	X	X	X	X		
9/8/2009	13:15	LPR8-ARFT-Comp21	1	Tissue	X	X	X	X		
9/8/2009	13:15	LPR8-ARFT-Comp22	1	Tissue	X	X	X	X		
9/9/2009	8:25	LPR8-ARFT-Comp14	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: Windward Environmental LLC Date/Time: 7/20/10 1645 Rec'd by:  Company: Alpha Analytical Date/Time: 7/20/10 1645		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



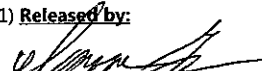

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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 7/20/10	Laboratory W.O. #: L1009361
Condition upon receipt: Satisfactory	Time of receipt: 1645
Cooler temperature: NA	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

To:	Alpha Analytical	COC reference:	# LPR-AA-EELF-D
Attn:	Ellen Collins	Shipping Date:	NA
Shipper:	NA	Airbill Number:	NA
Form filled out by:	Jennifer Parker/Dianne Janak	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
9/2/2009	14:59	LPR2-ARFT-Comp04	1	Tissue	X	X	X	X		
9/5/2009	12:03	LPR1-ARFT-Ind085	1	Tissue	X	X	X	X		
Total Number of Containers			2 of 32	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: <u>ALPHA</u> Date/Time: <u>7/20/10 1645</u> Rec'd by:  Company: <u>ALPHA</u> Date/Time: <u>7/20/10 1645</u>		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



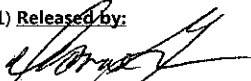
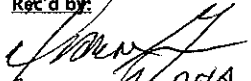
200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

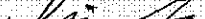
Date of receipt: 7/20/0	Laboratory W.O. #: L1009361
Condition upon receipt: satisfactory	Time of receipt: 1645
Cooler temperature: N/A	Received by: [Signature]

CHAIN-OF-CUSTODY/TEST REQUEST FORM

To:	Alpha Analytical	COC reference	# LPR-AA-RB7
Attn:	Ellen Collins	Shipping Date:	NA
Shipper:	NA	Airbill Number:	NA
Form filled out by:	Jennifer Parker/Ellen Collins	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	PCB Aroclors (8082)	Alkylated PAHs (8270C)			
7/19/2010	12:30	LPR-071910-RB	6	Water	X	X	X			
Total Number of Containers			6	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: <u>ALPHA</u> Date/Time: <u>7/19/10 1605</u> Rec'd by:  Company: <u>ALPHA</u> Date/Time: <u>7/19/10 1605</u>		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:			NOTES			

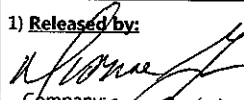
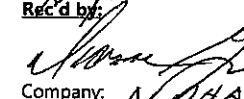
To be completed by Laboratory upon sample receipt:

Date of receipt: 7/19/2010	Laboratory W.O. #: L1009361
Condition upon receipt: Satisfactory	Time of receipt: 13:00
Cooler temperature: NA	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

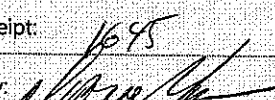
To: Alpha Analytical COC reference: # LPR-AA-EELWB-A
 Attn: Ellen Collins Shipping Date: NA
 Shipper: NA Airbill Number: NA
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
9/2/2009	14:59	LPR2-ARCT-Comp04	1	Tissue	X	X	X	X		
9/5/2009	12:03	LPR1-ARCT-Ind085	1	Tissue	X	X	X	X		
8/11/2009	7:46	LPR3-ARWB-Ind001	1	Tissue	X	X	X	X		
8/11/2009	11:30	LPR3-ARWB-Ind009	1	Tissue	X	X	X	X		
8/12/2009	11:36	LPR3-ARWB-Ind012	1	Tissue	X	X	X	X		
8/18/2009	11:28	LPR4-ARWB-Ind024	1	Tissue	X	X	X	X		
8/18/2009	12:39	LPR4-ARWB-Ind025	1	Tissue	X	X	X	X		
8/20/2009	12:30	LPR5-ARWB-Ind039	1	Tissue	X	X	X	X		
8/20/2009	14:42	LPR4-ARWB-Ind043	1	Tissue	X	X	X	X		
8/21/2009	11:50	LPR5-ARWB-Comp11	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>7/20/10 1645</u> Rec'd by:  Company: <u>Alpha</u> Date/Time: <u>7/20/10 1645</u>		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>7/20/10</u>	Laboratory W.O. #: <u>L1009363</u>
Condition upon receipt: <u>Satisfactory</u>	Time of receipt: <u>1645</u>
Cooler temperature: <u>NA</u>	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical**
 Attn: **Ellen Collins**
 Shipper: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference: **# LPR-AA-EELWB-B**
 Shipping Date: **NA**
 Airbill Number: **NA**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
8/22/2009	8:17	LPR4-ARWB-Ind060	1	Tissue	X	X	X	X		
8/22/2009	9:22	LPR5-ARWB-Ind062	1	Tissue	X	X	X	X		
8/27/2009	8:08	LPR7-ARWB-Ind070	1	Tissue	X	X	X	X		
8/27/2009	8:47	LPR6-ARWB-Ind069	1	Tissue	X	X	X	X		
8/29/2009	10:49	LPR6-ARWB-Ind074	1	Tissue	X	X	X	X		
9/3/2009	12:37	LPR1-ARWB-Comp03	1	Tissue	X	X	X	X		
9/7/2009	14:00	LPR8-ARWB-Comp16	1	Tissue	X	X	X	X		
9/8/2009	10:30	LPR8-ARWB-Comp15	1	Tissue	X	X	X	X		
9/8/2009	12:32	LPR8-ARWB-Comp18	1	Tissue	X	X	X	X		
9/9/2009	7:49	LPR8-ARWB-Comp13	1	Tissue	X	X	X	X		
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # AA09_01LPR						

1) Released by: Company: Alpha Date/Time: 7/20/10 1645 Rec'd by: Company: Alpha Date/Time: 7/20/10 1645	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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To be completed by Laboratory upon sample receipt:

Date of receipt: 7/20/10	Laboratory W.O. #: L1009363
Condition upon receipt: Satisfactory	Time of receipt: 1645
Cooler temperature: N/A	Received by:

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	Task 16.1 (09.58.02.31)
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Alpha Analytical	COC reference:	# LPR-AA-EELWB-C
Attn:	Ellen Collins	Shipping Date:	NA
Shipper:	NA	Airbill Number:	NA
Form filled out by:	Jennifer Parker/Dianne Janak	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					
					SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)		
9/9/2009	11:25	LPR8-ARWB-Comp19	1	Tissue	X	X	X	X		Comments / Instructions [lar tag number(s)]
Total Number of Containers			1of 21	Purchase Order / Statement of Work # AA09_01LPR						
1) Released by: Company: Alpha Analytical Date/Time: 7/20/10 1645 <u>Rec'd by:</u> Company: Alpha Analytical Date/Time: 7/20/10 1645		2) Released by: Company: Date/Time: <u>Rec'd by:</u> Company: Date/Time:			3) Released by: Company: Date/Time: <u>Rec'd by:</u> Company: Date/Time:			NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).		



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To be completed by Laboratory upon sample receipt:

Date of receipt: 7/20/10	Laboratory W.O. #: L1009363
Condition upon receipt: Satisfactory	Time of receipt: 1645
Cooler temperature: N/A	Received by: [Signature]

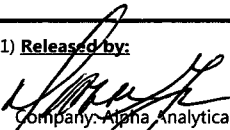
Analytical Perspectives

CHAIN-OF-CUSTODY/TEST REQUEST FORM

P 2102

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives # LPR-AP-MH-1A
 Attn: Kim Mace Shipping Date: 03/23/2010
 Shipper: UPS Airbill Number: 1Z19E18E 014385 9442
 Form filled out by: Jennifer Parker / Diane Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
8/26/2009	07:12	LPR6-CSMH-Comp37	1	Tissue	X	X				
9/15/2009	09:58	LPR6-CSMH-Comp38	1	Tissue	X	X				
8/20/2009	13:03	LPR4-CSMH-Comp31	1	Tissue	X	X				
8/27/2009	07:13	LPR6-CSMH-Comp41	1	Tissue	X	X				
8/25/2009	07:26	LPR6-CSMH-Comp42	1	Tissue	X	X				
8/27/2009	07:52	LPR6-CSMH-Comp44	1	Tissue	X	X				
8/25/2009	09:24	LPR7-CSMH-Comp45	1	Tissue	X	X				
8/25/2009	09:24	LPR7-CSMH-Comp46	1	Tissue	X	X				
8/25/2009	09:35	LPR7-CSMH-Comp49	1	Tissue	X	X				
8/26/2009	08:58	LPR7-CSMH-Comp53	1	Tissue	X	X				
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: Alpha Analytical Date/Time: 3/23/10 1710 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.		



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To be completed by Laboratory upon sample receipt:

Date of receipt: <u>24 Mar 10</u>	Laboratory W.O. #: <u>P2102</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>10:20</u>
Cooler temperature: <u>-16°</u>	Received by: <u>Theresa White</u>

To:	Analytical Perspectives		# LPR-AP-MH-1C
Attn:	Kim Mace	Shipping Date:	03/23/2010
Shipper:	UPS	Airbill Number:	1Z19E18E0143859442
Form filled out by:	Jennifer Parker	Turnaround requested:	Standard



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To be completed by Laboratory upon sample receipt:

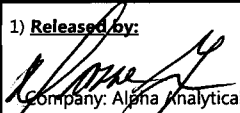
Date of receipt: 24 Mar 10	Laboratory W.O. #: P21032 ^{cc} _{NM}
Condition upon receipt: good	Time of receipt: 10:20
Cooler temperature: -120°	Received by: M. Russell White

CHAIN-OF-CUSTODY/TEST REQUEST FORM

P2103

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives # LPR-AP-MH-1B
 Attn: Kim Mace Shipping Date: 03/23/2010
 Shipper: UPS Airbill Number: 1219E18E 01 43859442
 Form filled out by: Jennifer Parker / Diane Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
9/10/2009	13:02	LPR8-CSMH-Comp61	1	Tissue	X	X				
8/25/2009	09:39	LPR7-CSMH-Comp48	1	Tissue	X	X				
9/9/2009	09:54	LPR8-CSMH-Comp54	1	Tissue	X	X				
8/25/2009	09:35	LPR7-CSMH-Comp50	1	Tissue	X	X				
9/9/2009	09:54	LPR8-CSMH-Comp55	1	Tissue	X	X				
9/8/2009	08:44	LPR8-CSMH-Comp56	1	Tissue	X	X				
9/9/2009	08:56	LPR8-CSMH-Comp57	1	Tissue	X	X				
9/1/2009	12:33	LPR1-CSMH-Comp01	1	Tissue	X	X				
9/2/2009	15:02	LPR1-CSMH-Comp02	1	Tissue	X	X				
9/2/2009	15:46	LPR1-CSMH-Comp03	1	Tissue	X	X				
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: Alpha Analytical Date/Time: 3/23/10 1710 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.		



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To be completed by Laboratory upon sample receipt:

Date of receipt: <u>24 Mar 10</u>	Laboratory W.O. #: <u>P2103</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>10:20</u>
Cooler temperature: <u>-16°</u>	Received by: <u>Kim Mace</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

P2133

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives** # LPR-AP-CT-A
 Attn: **Kim Mace** Shipping Date: **4/7/10**
 Shipper: **Jennifer Parker** Airbill Number: **1719E18E 014355 3183**
 Form filled out by: **Jennifer Parker** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
X 8/20/2009	13:03	LPR4-CSCT-Comp31	1	Tissue	X	X				
X 9/1/2009	12:33	LPR1-CSCT-Comp01	1	Tissue	X	X				
X 9/2/2009	15:02	LPR1-CSCT-Comp02	1	Tissue	X	X				
X 9/2/2009	15:46	LPR1-CSCT-Comp03	1	Tissue	X	X				
X 9/2/2009	15:46	LPR1-CSCT-Comp04	1	Tissue	X	X				
X 9/1/2009	14:04	LPR1-CSCT-Comp06	1	Tissue	X	X				
X 9/2/2009	16:33	LPR1-CSCT-Comp07	1	Tissue	X	X				
X 9/2/2009	12:49	LPR1-CSCT-Comp11	1	Tissue	X	X				
X 8/18/2009	11:41	LPR4-CSCT-Comp30	1	Tissue	X	X				
X 9/1/2009	12:49	LPR1-CSCT-Comp13	1	Tissue	X	X				
Total Number of Containers			10 of 24	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by: Company: Date/Time: 4/16/10 1610 Rec'd by: Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		

* Samples in this project

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To be completed by Laboratory upon sample receipt:

Date of receipt: 08 Apr 10	Laboratory W.O. #: P2133
Condition upon receipt: good	Time of receipt: 10:22
Cooler temperature: 10 1° 	Received by:

2

of

3

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives # LPR-AP-CT-B
 Attn: Kim Mace Shipping Date: 4/7/10
 Shipper: Airbill Number: 1719ET8E 014355 3183
 Form filled out by: Jennifer Parker Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (Jar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
9/1/2009	12:09	LPR2-CSCT-Comp14	1	Tissue	X	X				
9/1/2009	11:03	LPR2-CSCT-Comp17	1	Tissue	X	X				
9/1/2009	10:02	LPR2-CSCT-Comp15	1	Tissue	X	X				
9/3/2009	12:35	LPR2-CSCT-Comp18	1	Tissue	X	X				
9/1/2009	11:32	LPR2-CSCT-Comp19	1	Tissue	X	X				
9/1/2009	11:32	LPR2-CSCT-Comp20	1	Tissue	X	X				
8/11/2009	10:08	LPR3-CSCT-Comp24	1	Tissue	X	X				
8/18/2009	07:43	LPR5-CSCT-Comp34	1	Tissue	X	X				
8/12/2009	10:29	LPR3-CSCT-Comp26	1	Tissue	X	X				
8/18/2009	10:35	LPR4-CSCT-Comp32	1	Tissue	X	X				
Total Number of Containers			10 of 24	Purchase Order / Statement of Work # AP09_05LPR						

1) Released by: <u>[Signature]</u> Company: <u>UPA</u> Date/Time: <u>4/7/10 1610</u> Rec'd by: <u>UPS</u> Company: <u></u> Date/Time: <u></u>	2) Released by: <u></u> Company: <u></u> Date/Time: <u></u> Rec'd by: <u></u> Company: <u></u> Date/Time: <u></u>	3) Released by: <u></u> Company: <u></u> Date/Time: <u></u> Rec'd by: <u></u> Company: <u></u> Date/Time: <u></u>	4) Released by: <u></u> Company: <u></u> Date/Time: <u></u> Rec'd by: <u></u> Company: <u></u> Date/Time: <u></u>	5) Released by: <u></u> Company: <u></u> Date/Time: <u></u> Rec'd by: <u></u> Company: <u></u> Date/Time: <u></u>
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* Samples in this project



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To be completed by Laboratory upon sample receipt:

Date of receipt: <u>08 Apr 10</u>	Laboratory W.O. #: <u>P2134</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>10:22</u>
Cooler temperature: <u>1</u>	Received by: <u>[Signature]</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives # LPR-AP-CT-C
 Attn: Kim Mace Shipping Date: 4/7/10
 Shipper: Jennifer Parker Airbill Number: 1219E18E 014355 3183
 Form filled out by: Jennifer Parker Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
8/18/2009	12:01	LPR4-CSCT-Comp33	1	Tissue	X	X				
8/11/2009	07:21	LPR3-CSCT-Comp27	1	Tissue	X	X				
8/13/2009	11:52	LPR3-CSCT-Comp28	1	Tissue	X	X				
8/21/2009	13:46	LPR5-CSCT-Comp35	1	Tissue	X	X				
Total Number of Containers			4 of 24	Purchase Order / Statement of Work # AP09_05LPR						

1) Released by: <u>[Signature]</u> Company: <u>SCDHA</u> Date/Time: <u>4/8/10 1610</u> Rec'd by: <u>[Signature]</u> Company: <u>UPS</u> Date/Time:	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:
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*Samples in this Project



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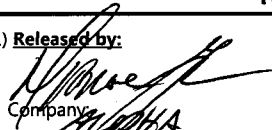
See previous page for sample receipt info 11 Apr 10
 To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives # LPR-AP-MH-2A
 Attn: Kim Mace Shipping Date: 4/7/10
 Shipper: Airbill Number: 129E18E014275 5136
 Form filled out by: Jennifer Parker Turnaround requested: Standard

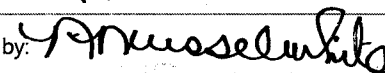
Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (Jar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
9/8/2009	09:50	LPR8-CSMH-Comp58	1	Tissue	X	X				
9/1/2009	14:04	LPR1-CSMH-Comp06	1	Tissue	X	X				
9/2/2009	16:33	LPR1-CSMH-Comp07	1	Tissue	X	X				
9/2/2009	12:49	LPR1-CSMH-Comp11	1	Tissue	X	X				
8/20/2009	13:03	LPR4-CSMH-Comp30	1	Tissue	X	X				WW Note: Correct collection date/time for LPR4-CSMH-Comp30 is 8/18/2009 at 11:41.
9/1/2009	12:49	LPR1-CSMH-Comp13	1	Tissue	X	X				
9/1/2009	12:09	LPR2-CSMH-Comp14	1	Tissue	X	X				
9/1/2009	11:03	LPR2-CSMH-Comp17	1	Tissue	X	X				
9/1/2009	10:02	LPR2-CSMH-Comp15	1	Tissue	X	X				
9/3/2009	12:35	LPR2-CSMH-Comp18	1	Tissue	X	X				
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: Date/Time: Rec'd by: 4/7/10 1440		2) Released by: Company: Date/Time: Rec'd by:		3) Released by: Company: Date/Time: Rec'd by:		4) Released by: Company: Date/Time: Rec'd by:		5) Released by: Company: Date/Time: Rec'd by:		
Company: Date/Time:		Company: Date/Time:		Company: Date/Time:		Company: Date/Time:		Company: Date/Time:		

** Samples in this Project*

Windward
environmental LLC

200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>08 Apr 10</u>	Laboratory W.O. #: <u>P</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>10:22</u>
Cooler temperature: <u>3°</u>	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

P2140

2 of 2

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives** # LPR-AP-MH-Brev
 Attn: **Kim Mace** Shipping Date: _____
 Shipper: _____ Airbill Number: _____
 Form filled out by: **Jennifer Parker** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
9/1/2009	11:32	LPR2-CSMH-Comp19	1	Tissue	X	X				
9/1/2009	11:32	LPR2-CSMH-Comp20	1	Tissue	X	X				
8/11/2009	10:08	LPR3-CSMH-Comp24	1	Tissue	X	X				
8/18/2009	07:43	LPR5-CSMH-Comp34	1	Tissue	X	X				Alpha ID L1003087-36 on bag
8/12/2009	10:29	LPR3-CSMH-Comp26	1	Tissue	X	X				
8/18/2009	10:35	LPR4-CSMH-Comp32	1	Tissue	X	X				
8/18/2009	12:01	LPR4-CSMH-Comp33	1	Tissue	X	X				
8/11/2009	07:21	LPR3-CSMH-Comp27	1	Tissue	X	X				
8/13/2009	11:52	LPR3-CSMH-Comp28	1	Tissue	X	X				
8/21/2009	13:46	LPR5-CSMH-Comp35	1	Tissue	X	X				
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # AP09_05LPR						

1) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:
--	--	--	--	--



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 08 Apr 10	Laboratory W.O. #: P2140
Condition upon receipt: good	Time of receipt: 10:22
Cooler temperature: 3°	Received by: <i>[Signature]</i>

2

of

2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

7 2140

Project/Client Name: **Passaic RI/FS Tissue**

Project Number: **09.58.02.31**

Contact Name: **Jennifer Parker**

Sampled By: **Windward Environmental LLC**

To:

Attn:

Shipper:

Form filled out by:

Analytical Perspectives

LPR-AP-MH-2B

Kim Mace

Shipping Date:

4/7/10

Airbill Number: 1219E18E 014275 5736

Jennifer Parker

Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)			
9/1/2009	11:32	LPR2-CSMH-Comp19	1	Tissue	X	X			
9/1/2009	11:32	LPR2-CSMH-Comp20	1	Tissue	X	X			
8/11/2009	10:08	LPR3-CSMH-Comp24	1	Tissue	X	X			
8/21/2009	13:46	LPR5-CSMH-Comp35	1	Tissue	X	X			
8/12/2009	10:29	LPR3-CSMH-Comp26	1	Tissue	X	X			
8/18/2009	10:35	LPR4-CSMH-Comp32	1	Tissue	X	X			
8/18/2009	12:01	LPR4-CSMH-Comp33	1	Tissue	X	X			
8/11/2009	07:21	LPR3-CSMH-Comp27	1	Tissue	X	X			
8/13/2009	11:52	LPR3-CSMH-Comp28	1	Tissue	X	X			
8/21/2009	13:46	LPR5-CSMH-Comp35	1	Tissue	X	X			
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # AP09_05LPR					

1) Released by:

[Signature]

Company:

Date/Time: 4/7/10 1440

Rec'd by:

Company:

Date/Time:

2) Released by:

Company:

Date/Time:

Rec'd by:

Company:

Date/Time:

3) Released by:

Company:

Date/Time:

Rec'd by:

Company:

Date/Time:

4) Released by:

Company:

Date/Time:

Rec'd by:

Company:

Date/Time:

5) Released by:

Company:

Date/Time:

Rec'd by:

Company:

Date/Time:

Seal new COC showing correction

(nm) 4/12/10



200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

1

of

1

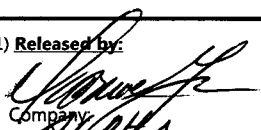
CHAIN-OF-CUSTODY/TEST REQUEST FORM

p 2159

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives** # LPR-AP-HT-A
 Attn: **Kim Mace** Shipping Date: **4/14/2010**
 Shipper: **UPS** Airbill Number: **1Z19E18E0142672454**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (Jar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
9/1/2009	13:10	LPR1-CSHT-Comp05	1	Tissue	X	X				
9/1/2009	11:03	LPR2-CSHT-Comp63	1	Tissue	X	X				
9/3/2009	11:10	LPR1-CSHT-Comp09	1	Tissue	X	X				
8/11/2009	07:21	LPR3-CSHT-Comp64	1	Tissue	X	X				
9/2/2009	14:13	LPR2-CSHT-Comp21	1	Tissue	X	X				
8/25/2009	09:24	LPRX-CSHT-Comp65	1	Tissue	X	X				
9/8/2009	07:48	LPR8-CSHT-Comp66	1	Tissue	X	X				
Total Number of Containers			7	Purchase Order / Statement of Work # AP09_05LPR						

1) Released by:  Company: Date/Time: 4/14/10 1400 Rec'd by: UPS Company: Date/Time:	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.
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200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 15 Apr 10	Laboratory W.O. #: P2159
Condition upon receipt: good	Time of receipt: 10:21
Cooler temperature: 2°	Received by: Yanusselwhite

2

of

3

CHAIN-OF-CUSTODY/TEST REQUEST FORM

P 2160

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives # LPR-AP-MT-B
 Attn: Kim Mace Shipping Date: 4/14/2010
 Shipper: UPS Airbill Number: 1719E18E 01 42072454
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
8/27/2009	07:17	LPR6-CSMT-Comp43	1	Tissue	X	X				
8/15/2009	7:00	LPR3-CSMT-Comp29	1	Tissue	X	X				
8/20/2009	12:20	LPR5-CSMT-Comp36	1	Tissue	X	X				
8/26/2009	11:38	LPR7-CSMT-Comp47	1	Tissue	X	X				
8/27/2009	08:55	LPR7-CSMT-Comp51	1	Tissue	X	X				
9/9/2009	08:56	LPR8-CSMT-Comp59	1	Tissue	X	X				
9/9/2009	08:47	LPR8-CSMT-Comp60	1	Tissue	X	X				
9/10/2009	13:02	LPR8-CSMT-Comp62	1	Tissue	X	X				
9/1/2009	13:10	LPR1-CSMT-Comp05	1	Tissue	X	X				
9/3/2009	11:10	LPR1-CSMT-Comp09	1	Tissue	X	X				
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # AP09_05LPR						

1) Released by: <u>[Signature]</u> Company: <u>Alpha</u> Date/Time: <u>4/14/10 1400</u> Rec'd by: <u>UPS</u> Company: Date/Time:	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.
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200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>15 Apr 10</u>	Laboratory W.O. #: <u>P2160</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>10:21</u>
Cooler temperature: <u>2°</u>	Received by: <u>[Signature]</u>

1

of

3

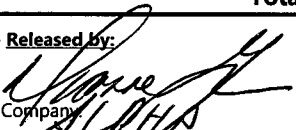
CHAIN-OF-CUSTODY/TEST REQUEST FORM

p2161

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives** # LPR-AP-MT-A
 Attn: **Kim Mace** Shipping Date: **4/14/2010**
 Shipper: **UPS** Airbill Number: **1219678E01 4207 2454**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

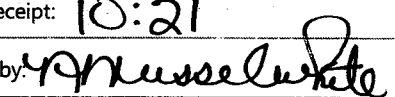
Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (Jar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
8/28/2009	8:50	LPR7-CSMT-Comp52	1	Tissue	X	X				
9/1/2009	14:04	LPR1-CSMT-Comp08	1	Tissue	X	X				
9/2/2009	12:08	LPR1-CSMT-Comp10	1	Tissue	X	X				
9/3/2009	12:00	LPR1-CSMT-Comp12	1	Tissue	X	X				
9/2/2009	12:26	LPR2-CSMT-Comp16	1	Tissue	X	X				
9/17/2009	11:27	LPR6-CSMT-Comp39	1	Tissue	X	X				
9/1/2009	11:46	LPR2-CSMT-Comp22	1	Tissue	X	X				
9/1/2009	11:07	LPR2-CSMT-Comp23	1	Tissue	X	X				
8/27/2009	06:50	LPR6-CSMT-Comp40	1	Tissue	X	X				
8/12/2009	09:24	LPR3-CSMT-Comp25	1	Tissue	X	X				
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # AP09_05LPR						

1) Released by:  Company: Alpha Analytical Date/Time: 4/14/10 1400 Rec'd by: UPS Company: Date/Time:	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.
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200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 15 Apr 10	Laboratory W.O. #: P2161
Condition upon receipt: good	Time of receipt: 10:21
Cooler temperature: 2	Received by: 

7216

To:	Analytical Perspectives		# LPR-AP-MT-C
Attn:	Kim Mace	Shipping Date:	4/14/2010
Shipper:	UPS	Airbill Number:	1219E18E0142072454
Form filled out by:	Jennifer Parker/Dianne Janak	Turnaround requested:	Standard



Windward
environmental LLC

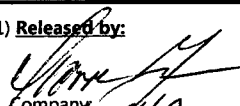
To be completed by Laboratory upon sample receipt:

Date of receipt: 15 Apr 10	Laboratory W.O. #: P2161
Condition upon receipt: good	Time of receipt: 10:21
Cooler temperature: 2°	Received by: [Signature]

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference: # LPR-AP-PI-A
 Attn: Kim Mace Shipping Date: 06/09/2010
 Shipper: UPS Airbill Number: 1219E78E 014361 2547
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
8/25/2009	9:54	LPR6-ELFT-Ind001	1	Tissue	X	X				Comments / Instructions [lar tag number(s)]
9/19/2009	9:35	LPR5-MSFT-Comp01	1	Tissue	X	X				
9/8/2009	10:09	LPR8-MSFT-Ind002	1	Tissue	X	X				
9/18/2009	10:35	LPR5-MSFT-Ind009	1	Tissue	X	X				
9/18/2009	13:50	LPR4-MDFT-Comp01	1	Tissue	X	X				
9/18/2009	10:35	LPR5-MDFT-Comp02	1	Tissue	X	X				
9/10/2009	8:40	LPR8-MDFT-Comp03	1	Tissue	X	X				
8/25/2009	9:54	LPR6-ELCT-Ind001	1	Tissue	X	X				
9/19/2009	9:35	LPR5-MSCT-Comp01	1	Tissue	X	X				
9/8/2009	10:09	LPR8-MSCT-Ind002	1	Tissue	X	X				
Total Number of Containers			10	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: <u>Windward Environmental LLC</u> Date/Time: <u>6/9/10 1500</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

* Samples in this project
 200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Windward
 environmental LLC

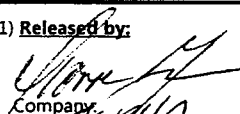
To be completed by Laboratory upon sample receipt:

Date of receipt: <u>10 June 10</u>	Laboratory W.O. #: <u>P2333</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>9:57</u>
Cooler temperature: <u>-1°</u>	Received by: <u>Arkusselwhite</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM **COPY**

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference # LPR-AP-PI-A
 Attn: Kim Mace Shipping Date: 06/09/2010
 Shipper: UPS Airbill Number: 1Z19E78E 014361 2SY
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
8/25/2009	9:54	LPR6-ELFT-Ind001	1	Tissue	X	X				
9/19/2009	9:35	LPR5-MSFT-Comp01	1	Tissue	X	X				
9/8/2009	10:09	LPR8-MSFT-Ind002	1	Tissue	X	X				
9/18/2009	10:35	LPR5-MSFT-Ind009	1	Tissue	X	X				
9/18/2009	13:50	LPR4-MDFT-Comp01	1	Tissue	X	X				
9/18/2009	10:35	LPR5-MDFT-Comp02	1	Tissue	X	X				
9/10/2009	8:40	LPR8-MDFT-Comp03	1	Tissue	X	X				
8/25/2009	9:54	LPR6-ELCT-Ind001	1	Tissue	X	X				
9/19/2009	9:35	LPR5-MSCT-Comp01	1	Tissue	X	X				
9/8/2009	10:09	LPR8-MSCT-Ind002	1	Tissue	X	X				
Total Number of Containers			10	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: <u>Windward Environmental LLC</u> Date/Time: <u>6/9/10 1500</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

* Samples in this project

200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Windward
 environmental LLC

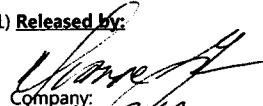

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>10 June 10</u>	Laboratory W.O. #: <u>P2333</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>9:57</u>
Cooler temperature: <u>-1°</u>	Received by: <u>Arkusselwhite</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	<u>Passaic RI/FS Tissue</u>
Project Number:	<u>09.58.02.31</u>
Contact Name:	<u>Jennifer Parker</u>
Sampled By:	<u>Windward Environmental LLC</u>

To:	Analytical Perspectives	COC reference:	# LPR-AP-PI-B
Attn:	Kim Mace	Shipping Date:	06/09/2010
Shipper:	UPS	Airbill Number:	1219E18E 01 4361 2347
Form filled out by:	Jennifer Parker/Dianne Janak	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (Jar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
9/18/2009	10:35	LPR5-MSCT-Ind009	1	Tissue	X	X				
9/18/2009	13:50	LPR4-MDCT-Comp01	1	Tissue	X	X				
9/18/2009	10:35	LPR5-MDCT-Comp02	1	Tissue	X	X				
9/10/2009	8:40	LPR8-MDCT-Comp03	1	Tissue	X	X				
Total Number of Containers			4	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: WINDWARD ENVIRONMENTAL Date/Time: 6/9/10 1500 Rec'd by:  Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

* Samples in this project

WindWard
environmental LLC

200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 10 June 10	Laboratory W.O. #: P 2333
Condition upon receipt: good	Time of receipt: 9:57
Cooler temperature: -1°	Received by: r. russelwhite

1

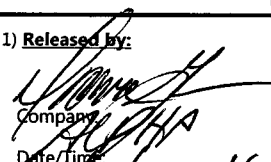
of

2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives** COC reference: **# LPR-AP-WB-A**
 Attn: **Kim Mace** Shipping Date: **06/16/2010**
 Shipper: **UPS** Airbill Number: **1219E/8E 01 4341 7384**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (Jar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
8/11/2009	9:25	LPR3-CCWB-Ind002	1	Tissue	X	X				
8/15/2009	8:50	LPR3-CCWB-Ind005	1	Tissue	X	X				
8/19/2009	10:03	LPR5-CCWB-Ind011	1	Tissue	X	X				
8/25/2009	7:30	LPR6-CCWB-Ind021	1	Tissue	X	X				
8/25/2009	8:43	LPR6-CCWB-Ind028	1	Tissue	X	X				
8/25/2009	11:33	LPR7-CCWB-Ind042	1	Tissue	X	X				
8/27/2009	9:01	LPR7-CCWB-Ind069	1	Tissue	X	X				
9/12/2009	7:58	LPR8-CCWB-Ind139	1	Tissue	X	X				
9/12/2009	10:57	LPR8-CCWB-Ind147	1	Tissue	X	X				
9/18/2009	10:35	LPR5-CCWB-Ind160	1	Tissue	X	X				
Total Number of Containers			10 of 18	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: Windward Environmental LLC Date/Time: 6/16/10 1610 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

* Samples in this project

Windward
 environmental LLC

200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

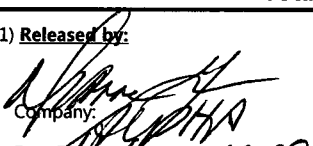
To be completed by Laboratory upon sample receipt:

Date of receipt: 17 June 10	Laboratory W.O. #: P2352
Condition upon receipt: good	Time of receipt: 10:20
Cooler temperature: 1°, 2°	Received by: AMusselwhite

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference: # LPR-AP-WB-B
 Attn: Kim Mace Shipping Date: 06/16/2010
 Shipper: UPS Airbill Number: 1Z19E18E0143417384
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
9/18/2009	13:50	LPR4-CCWB-Ind175	1	Tissue	X	X				
9/19/2009	12:10	LPR4-CCWB-Ind186	1	Tissue	X	X				
8/12/2009	9:27	LPR3-ANWB-Ind001	1	Tissue	X	X				
8/28/2009	8:05	LPR6-ANWB-Ind004	1	Tissue	X	X				
9/16/2009	10:08	LPR4-ANWB-Ind007	1	Tissue	X	X				
8/28/2009	7:24	LPR6-ANWB-Ind003	1	Tissue	X	X				
8/29/2009	11:01	LPR6-ANWB-Ind005	1	Tissue	X	X				
8/29/2009	11:44	LPR7-ANWB-Ind006	1	Tissue	X	X				
Total Number of Containers			8 of 18	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: <u>Alpha Analytical</u> Date/Time: <u>6/16/10 1610</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

* Samples in this project

200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Windward
 environmental LLC

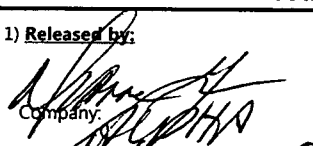
To be completed by Laboratory upon sample receipt:

Date of receipt: <u>17 June 10</u>	Laboratory W.O. #: <u>P2352</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>10:20</u>
Cooler temperature: <u>1°, 2°</u>	Received by: <u>W. Musserwhite</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM **COPY**

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference: # LPR-AP-WB-B
 Attn: Kim Mace Shipping Date: 06/16/2010
 Shipper: UPS Airbill Number: 1Z19E18E0143417384
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
9/18/2009	13:50	LPR4-CCWB-Ind175	1	Tissue	X	X				
9/19/2009	12:10	LPR4-CCWB-Ind186	1	Tissue	X	X				
8/12/2009	9:27	LPR3-ANWB-Ind001	1	Tissue	X	X				
8/28/2009	8:05	LPR6-ANWB-Ind004	1	Tissue	X	X				
9/16/2009	10:08	LPR4-ANWB-Ind007	1	Tissue	X	X				
8/28/2009	7:24	LPR6-ANWB-Ind003	1	Tissue	X	X				
8/29/2009	11:01	LPR6-ANWB-Ind005	1	Tissue	X	X				
8/29/2009	11:44	LPR7-ANWB-Ind006	1	Tissue	X	X				
Total Number of Containers			8 of 18	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: <u>Alpha Analytical</u> Date/Time: <u>6/16/10 1610</u> Rec'd by: <u>VP</u> Company: _____ Date/Time: _____		2) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		3) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

* Samples in this project

Windward
 environmental LLC

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 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>17 June 10</u>	Laboratory W.O. #: <u>P</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>10:20</u>
Cooler temperature: <u>1°, 2°</u>	Received by: <u>M. Muscedere</u>

1

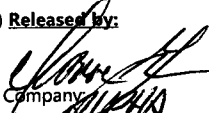
of

2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives** COC reference: **# LPR-AP-CF-A**
 Attn: **Kim Mace** Shipping Date: **06/16/2010**
 Shipper: **UPS** Airbill Number: **1219E18E 01 4141 5166**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
8/11/2009	9:25	LPR3-CCFT-Ind001	1	Tissue	X	X				
8/15/2009	8:50	LPR3-CCFT-Ind004	1	Tissue	X	X				
8/25/2009	9:54	LPR6-CCFT-Ind032	1	Tissue	X	X				
8/27/2009	9:01	LPR7-CCFT-Ind068	1	Tissue	X	X				
8/28/2009	9:32	LPR7-CCFT-Ind092	1	Tissue	X	X				
8/29/2009	8:10	LPR6-CCFT-Ind104	1	Tissue	X	X				
9/8/2009	7:48	LPR8-CCFT-Ind121	1	Tissue	X	X				
9/9/2009	9:15	LPR8-CCFT-Ind131	1	Tissue	X	X				
9/17/2009	10:49	LPR4-CCFT-Ind155	1	Tissue	X	X				
9/17/2009	11:05	LPR4-CCFT-Ind156	1	Tissue	X	X				
Total Number of Containers			10 of 12	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: Alpha Date/Time: 6/16/10 1535 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt: 17 June 10	Laboratory W.O. #: P2354
Condition upon receipt: good	Time of receipt: 10:20
Cooler temperature: 1°, 2°	Received by: Yanusselwhite

2

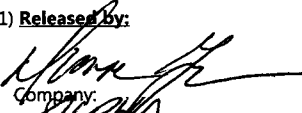
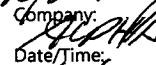
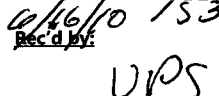
of

2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

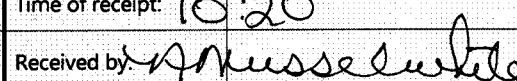
To: **Analytical Perspectives** COC reference: **# LPR-AP-CF-B**
 Attn: **Kim Mace** Shipping Date: **06/16/2010**
 Shipper: **UPS** Airbill Number: **1219E18E 014141 5766**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
9/19/2009	11:00	LPR5-CCFT-Ind181	1	Tissue	X	X				
9/19/2009	11:33	LPR5-CCFT-Ind184	1	Tissue	X	X				
Total Number of Containers			2 of 12	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company:  Date/Time: 6/16/10 1535 Rec'd by:  Company: UPS Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:



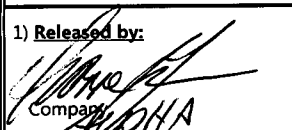
200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt: 17 June 10	Laboratory W.O. #: P2354
Condition upon receipt: good	Time of receipt: 10:20
Cooler temperature: 1°, 2°	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference: # LPR-AP-CATF-A
 Attn: Kim Mace Shipping Date: 07/08/2010
 Shipper: UPS Airbill Number: 1219E78E0142156499
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
9/12/2009	9:35	LPR8-WSFT-Ind009	1	Tissue	X	X				
9/12/2009	11:16	LPR8-WSFT-Ind013	1	Tissue	X	X				
9/15/2009	8:34	LPR5-WSFT-Ind019	1	Tissue	X	X				
9/18/2009	11:57	LPR5-WSFT-Ind020	1	Tissue	X	X				
9/18/2009	14:10	LPR4-WSFT-Ind023	1	Tissue	X	X				
8/18/2009	8:15	LPR5-IPFT-Ind001	1	Tissue	X	X				
8/25/2009	7:17	LPR6-IPFT-Ind003	1	Tissue	X	X				
8/26/2009	8:29	LPR6-IPFT-Ind004	1	Tissue	X	X				
8/26/2009	10:18	LPR7-IPFT-Ind005	1	Tissue	X	X				
8/27/2009	9:34	LPR7-IPFT-Ind006	1	Tissue	X	X				
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AP09_05LPR R						
1) Released by:  Company: <u>Alpha Analytical</u> Date/Time: <u>7/8/10 1535</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:



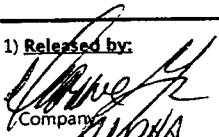
200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt: <u>9-9 July-10</u>	Laboratory W.O. #:
Condition upon receipt: <u>GOOD</u>	Time of receipt: <u>10:45 Am</u>
Cooler temperature: <u>-1°</u>	Received by: <u>Sharon R. Hudson</u>

1 of 4

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue To: Analytical Perspectives COC reference: # LPR-AP-CATC-A
 Project Number: Task 16.1 (09.58.02.31) Attn: Kim Mace Shipping Date: 07/08/2010
 Contact Name: Jennifer Parker Shipper: UPS Airbill Number: 719E7BE 014381 0109
 Sampled By: Windward Environmental LLC Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (lar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
9/12/2009	9:35	LPR8-WSCT-Ind009	1	Tissue	X	X				
9/12/2009	11:16	LPR8-WSCT-Ind013	1	Tissue	X	X				
9/15/2009	8:34	LPR5-WSCT-Ind019	1	Tissue	X	X				
9/18/2009	11:57	LPR5-WSCT-Ind020	1	Tissue	X	X				
9/18/2009	14:10	LPR4-WSCT-Ind023	1	Tissue	X	X				
8/18/2009	8:15	LPR5-IPCT-Ind001	1	Tissue	X	X				
8/25/2009	7:17	LPR6-IPCT-Ind003	1	Tissue	X	X				
8/26/2009	8:29	LPR6-IPCT-Ind004	1	Tissue	X	X				
8/26/2009	10:18	LPR7-IPCT-Ind005	1	Tissue	X	X				
8/27/2009	9:34	LPR7-IPCT-Ind006	1	Tissue	X	X				
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AP09_05LPR R						
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>7/8/10 1610</u> Rec'd by: <u>UPS</u> Company: _____ Date/Time: _____		2) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		3) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>9 July 10</u>	Laboratory W.O. #: _____
Condition upon receipt: <u>GOOD</u>	Time of receipt: <u>10:45 am</u>
Cooler temperature: <u>-1°</u>	Received by: <u>Suzanne R Hudson</u>



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 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

1

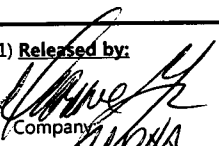
of

4

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives** COC reference: **# LPR-AP-CATC-A**
 Attn: **Kim Mace** Shipping Date: **07/08/2010**
 Shipper: **UPS** Airbill Number: **729E78E 014381 0109**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)			
9/12/2009	9:35	LPR8-WSCT-Ind009	1	Tissue	X	X			
9/12/2009	11:16	LPR8-WSCT-Ind013	1	Tissue	X	X			
9/15/2009	8:34	LPR5-WSCT-Ind019	1	Tissue	X	X			
9/18/2009	11:57	LPR5-WSCT-Ind020	1	Tissue	X	X			
9/18/2009	14:10	LPR4-WSCT-Ind023	1	Tissue	X	X			
8/18/2009	8:15	LPR5-IPCT-Ind001	1	Tissue	X	X			
8/25/2009	7:17	LPR6-IPCT-Ind003	1	Tissue	X	X			
8/26/2009	8:29	LPR6-IPCT-Ind004	1	Tissue	X	X			
8/26/2009	10:18	LPR7-IPCT-Ind005	1	Tissue	X	X			
8/27/2009	9:34	LPR7-IPCT-Ind006	1	Tissue	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AP09_05LPR R					
1) Released by:  Company: ALPHA Date/Time: 7/8/10 1610 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

To be completed by Laboratory upon sample receipt:

Date of receipt: 9 July -10	Laboratory W.O. #:
Condition upon receipt: GOOD	Time of receipt: 10:45 am
Cooler temperature: -1°	Received by: Shane R Hudson

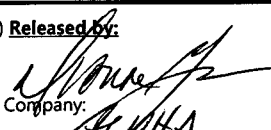



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives**
 Attn: **Kim Mace**
 Shipper: **UPS**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference: **# LPR-AP-CATC-B**
 Shipping Date: **07/08/2010**
 Airbill Number: **17195014381 0109**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
9/9/2009	9:15	LPR8-IPCT-Ind008	1	Tissue	X	X				Comments / Instructions [lar tag number(s)]
9/9/2009	9:15	LPR8-IPCT-Ind009	1	Tissue	X	X				
9/10/2009	13:02	LPR8-IPCT-Ind010	1	Tissue	X	X				
9/10/2009	13:02	LPR8-IPCT-Ind011	1	Tissue	X	X				
9/10/2009	13:02	LPR8-IPCT-Ind012	1	Tissue	X	X				
9/10/2009	13:02	LPR8-IPCT-Ind013	1	Tissue	X	X				
8/11/2009	11:08	LPR3-ACCT-Ind001	1	Tissue	X	X				
8/11/2009	11:30	LPR3-ACCT-Ind002	1	Tissue	X	X				
8/13/2009	10:26	LPR3-ACCT-Ind003	1	Tissue	X	X				
8/14/2009	9:04	LPR3-ACCT-Ind005	1	Tissue	X	X				
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: Windward Environmental LLC Date/Time: 7/8/10 1610 Rec'd by:  Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt: 9-July-10	Laboratory W.O. #:
Condition upon receipt: GOOD	Time of receipt: 10:45 AM
Cooler temperature: -1°	Received by: Shane R. Hudson

2

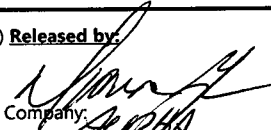
of

2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives** COC reference: **# LPR-AP-CATF-B**
 Attn: **Kim Mace** Shipping Date: **07/08/2010**
 Shipper: **UPS** Airbill Number: **1219018E 0142156499**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
9/9/2009	9:15	LPR8-IPFT-Ind008	1	Tissue	X	X				
9/9/2009	9:15	LPR8-IPFT-Ind009	1	Tissue	X	X				
9/10/2009	13:02	LPR8-IPFT-Ind010	1	Tissue	X	X				
9/10/2009	13:02	LPR8-IPFT-Ind011	1	Tissue	X	X				
9/10/2009	13:02	LPR8-IPFT-Ind012	1	Tissue	X	X				
9/10/2009	13:02	LPR8-IPFT-Ind013	1	Tissue	X	X				
8/11/2009	11:08	LPR3-ACFT-Ind001	1	Tissue	X	X				
8/11/2009	11:30	LPR3-ACFT-Ind002	1	Tissue	X	X				
8/13/2009	10:26	LPR3-ACFT-Ind003	1	Tissue	X	X				
8/14/2009	9:04	LPR3-ACFT-Ind005	1	Tissue	X	X				
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: Alpha Date/Time: 7/8/10 1335 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 9-July-10	Laboratory W.O. #:
Condition upon receipt: Good	Time of receipt: 10:45 AM
Cooler temperature: -1°	Received by: Shane R. Hudson

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference # LPR-AP-CATF-A
 Attn: Kim Mace Shipping Date: 07/08/2010
 Shipper: UPS Airbill Number: 1219E7BE 01 4215 6499
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)			
9/12/2009	9:35	LPR8-WSFT-Ind009	1	Tissue	X	X			
9/12/2009	11:16	LPR8-WSFT-Ind013	1	Tissue	X	X			
9/15/2009	8:34	LPR5-WSFT-Ind019	1	Tissue	X	X			
9/18/2009	11:57	LPR5-WSFT-Ind020	1	Tissue	X	X			
9/18/2009	14:10	LPR4-WSFT-Ind023	1	Tissue	X	X			
8/18/2009	8:15	LPR5-IPFT-Ind001	1	Tissue	X	X			
8/25/2009	7:17	LPR6-IPFT-Ind003	1	Tissue	X	X			
8/26/2009	8:29	LPR6-IPFT-Ind004	1	Tissue	X	X			
8/26/2009	10:18	LPR7-IPFT-Ind005	1	Tissue	X	X			
8/27/2009	9:34	LPR7-IPFT-Ind006	1	Tissue	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AP09_05LPR R					
1) Released by: <u>[Signature]</u> Company: <u>Alpha</u> Date/Time: <u>7/8/10 1535</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

To be completed by Laboratory upon sample receipt:



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 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt: <u>9-July-10</u>	Laboratory W.O. #:
Condition upon receipt: <u>GOOD</u>	Time of receipt: <u>10:45 Am</u>
Cooler temperature: <u>-1°</u>	Received by: <u>Shane R. Hudson</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference: # LPR-AP-CATC-B
 Attn: Kim Mace Shipping Date: 07/08/2010
 Shipper: UPS Airbill Number: 1Z19E014381 0109
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (lar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
9/9/2009	9:15	LPR8-IPCT-Ind008	1	Tissue	X	X				COPY 5-10 Jul 10
9/9/2009	9:15	LPR8-IPCT-Ind009	1	Tissue	X	X				
9/10/2009	13:02	LPR8-IPCT-Ind010	1	Tissue	X	X				
9/10/2009	13:02	LPR8-IPCT-Ind011	1	Tissue	X	X				
9/10/2009	13:02	LPR8-IPCT-Ind012	1	Tissue	X	X				
9/10/2009	13:02	LPR8-IPCT-Ind013	1	Tissue	X	X				
8/11/2009	11:08	LPR3-ACCT-Ind001	1	Tissue	X	X				
8/11/2009	11:30	LPR3-ACCT-Ind002	1	Tissue	X	X				
8/13/2009	10:26	LPR3-ACCT-Ind003	1	Tissue	X	X				
8/14/2009	9:04	LPR3-ACCT-Ind005	1	Tissue	X	X				
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by: Company: Date/Time: 7/8/10 1610 Rec'd by: UP		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt: <u>9-July-10</u>	Laboratory W.O. #:
Condition upon receipt: <u>GOOD</u>	Time of receipt: <u>10:45 AM</u>
Cooler temperature: <u>-1°</u>	Received by: <u>Shane R. Hudson</u>

3

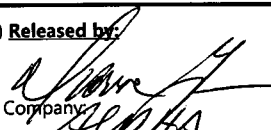

of

4

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives** COC reference: **# LPR-AP-CATC-C**
 Attn: **Kim Mace** Shipping Date: **07/08/2010**
 Shipper: **UPS** Airbill Number: **1Z19E7BE01 43810109**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)			
8/19/2009	10:51	LPR5-ACCT-Ind006	1	Tissue	X	X			Comments / Instructions [Jar tag number(s)]
8/25/2009	8:25	LPR6-ACCT-Ind008	1	Tissue	X	X			
8/25/2009	8:25	LPR6-ACCT-Ind009	1	Tissue	X	X			
8/26/2009	7:55	LPR6-ACCT-Ind010	1	Tissue	X	X			
8/27/2009	7:27	LPR6-ACCT-Ind013	1	Tissue	X	X			
8/27/2009	9:48	LPR7-ACCT-Ind014	1	Tissue	X	X			
8/29/2009	11:11	LPR6-ACCT-Ind016	1	Tissue	X	X			
8/29/2009	12:06	LPR7-ACCT-Ind017	1	Tissue	X	X			
9/2/2009	14:13	LPR2-ACCT-Ind018	1	Tissue	X	X			
9/8/2009	8:04	LPR8-ACCT-Ind019	1	Tissue	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AP09_05LPR					
1) Released by:  Company: Alpha Analytical Date/Time: 7/8/10 1610 Rec'd by:  Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

To be completed by Laboratory upon sample receipt:



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
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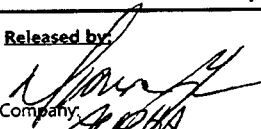
Date of receipt: 9-July-10	Laboratory W.O. #:
Condition upon receipt: Good	Time of receipt: 10:45 am
Cooler temperature: -1°	Received by: Shane R. Hudson

2 of 2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference: # LPR-AP-CATF-B
 Attn: Kim Mace Shipping Date: 07/08/2010
 Shipper: UPS Airbill Number: 121908E 0142156499
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)			
9/9/2009	9:15	LPR8-IPFT-Ind008	1	Tissue	X	X			copy 10 Jul 10
9/9/2009	9:15	LPR8-IPFT-Ind009	1	Tissue	X	X			
9/10/2009	13:02	LPR8-IPFT-Ind010	1	Tissue	X	X			
9/10/2009	13:02	LPR8-IPFT-Ind011	1	Tissue	X	X			
9/10/2009	13:02	LPR8-IPFT-Ind012	1	Tissue	X	X			
9/10/2009	13:02	LPR8-IPFT-Ind013	1	Tissue	X	X			
8/11/2009	11:08	LPR3-ACFT-Ind001	1	Tissue	X	X			
8/11/2009	11:30	LPR3-ACFT-Ind002	1	Tissue	X	X			
8/13/2009	10:26	LPR3-ACFT-Ind003	1	Tissue	X	X			
8/14/2009	9:04	LPR3-ACFT-Ind005	1	Tissue	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AP09_05LPR					
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>7/8/10 1335</u> Rec'd by: <u>UPS</u> Company: _____ Date/Time: _____		2) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		3) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

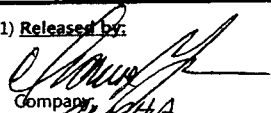
To be completed by Laboratory upon sample receipt:

Date of receipt: <u>9-July-10</u>	Laboratory W.O. #:
Condition upon receipt: <u>Good</u>	Time of receipt: <u>10:45 AM</u>
Cooler temperature: <u>-1°</u>	Received by: <u>Sharon R. Hudson</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference: # LPR-AP-CATF-C
 Attn: Kim Mace Shipping Date: 07/08/2010
 Shipper: UPS Airbill Number: 1Z19ETBE0142156499
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
8/19/2009	10:51	LPR5-ACFT-Ind006	1	Tissue	X	X				copy 7/10/10
8/25/2009	8:25	LPR6-ACFT-Ind008	1	Tissue	X	X				
8/25/2009	8:25	LPR6-ACFT-Ind009	1	Tissue	X	X				
8/26/2009	7:55	LPR6-ACFT-Ind010	1	Tissue	X	X				
8/27/2009	7:27	LPR6-ACFT-Ind013	1	Tissue	X	X				
8/27/2009	9:48	LPR7-ACFT-Ind014	1	Tissue	X	X				
8/29/2009	11:11	LPR6-ACFT-Ind016	1	Tissue	X	X				
8/29/2009	12:06	LPR7-ACFT-Ind017	1	Tissue	X	X				
9/2/2009	14:13	LPR2-ACFT-Ind018	1	Tissue	X	X				
9/8/2009	8:04	LPR8-ACFT-Ind019	1	Tissue	X	X				
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: <u>Windward Environmental LLC</u> Date/Time: <u>7/8/10 1535</u> Rec'd by: <u>UPS</u> Company: _____ Date/Time: _____		2) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		3) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>9 July 10</u>	Laboratory W.O. #: _____
Condition upon receipt: <u>GOOD</u>	Time of receipt: <u>10:45 Am</u>
Cooler temperature: <u>-1°</u>	Received by: <u>Suzanne R. Hudson</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference: # LPR-AP-CATC-C
 Attn: Kim Mace Shipping Date: 07/08/2010
 Shipper: UPS Airbill Number: 1Z19ETBE01 43810109
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions (lar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)			
8/19/2009	10:51	LPR5-ACCT-Ind006	1	Tissue	X	X			Copy 12 Jul 10
8/25/2009	8:25	LPR6-ACCT-Ind008	1	Tissue	X	X			
8/25/2009	8:25	LPR6-ACCT-Ind009	1	Tissue	X	X			
8/26/2009	7:55	LPR6-ACCT-Ind010	1	Tissue	X	X			
8/27/2009	7:27	LPR6-ACCT-Ind013	1	Tissue	X	X			
8/27/2009	9:48	LPR7-ACCT-Ind014	1	Tissue	X	X			
8/29/2009	11:11	LPR6-ACCT-Ind016	1	Tissue	X	X			
8/29/2009	12:06	LPR7-ACCT-Ind017	1	Tissue	X	X			
9/2/2009	14:13	LPR2-ACCT-Ind018	1	Tissue	X	X			
9/8/2009	8:04	LPR8-ACCT-Ind019	1	Tissue	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AP09_05LPR					
1) Released by: <u>[Signature]</u> Company: <u>Alpha</u> Date/Time: <u>7/8/10 1610</u> Rec'd by: <u>UPS</u> Company: <u></u> Date/Time: <u></u>		2) Released by: <u></u> Company: <u></u> Date/Time: <u></u> Rec'd by: <u></u> Company: <u></u> Date/Time: <u></u>		3) Released by: <u></u> Company: <u></u> Date/Time: <u></u> Rec'd by: <u></u> Company: <u></u> Date/Time: <u></u>		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			



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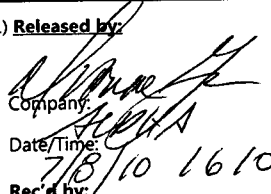
To be completed by Laboratory upon sample receipt:

Date of receipt: <u>9-July-10</u>	Laboratory W.O. #: <u></u>
Condition upon receipt: <u>Good</u>	Time of receipt: <u>10:45 am</u>
Cooler temperature: <u>-1°</u>	Received by: <u>Shane R. Hudson</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference: # LPR-AP-CATC-D
 Attn: Kim Mace Shipping Date: 07/08/2010
 Shipper: UPS Airbill Number: 1219278E014381 019
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)			
9/8/2009	8:44	LPR8-ACCT-Ind020	1	Tissue	X	X			
9/8/2009	8:44	LPR8-ACCT-Ind021	1	Tissue	X	X			
9/10/2009	13:02	LPR8-ACCT-Ind022	1	Tissue	X	X			
9/17/2009	11:05	LPR4-ACCT-Ind023	1	Tissue	X	X			
9/18/2009	11:15	LPR5-ACCT-Ind024	1	Tissue	X	X			
Total Number of Containers			5 of 35	Purchase Order / Statement of Work # AP09_05LPR					
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>7/8/10 1610</u> Rec'd by: <u>UPS</u> Company: _____ Date/Time: _____		2) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		3) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			



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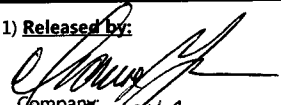
To be completed by Laboratory upon sample receipt:

Date of receipt: <u>9 July-10</u>	Laboratory W.O. #:
Condition upon receipt: <u>Good</u>	Time of receipt: <u>10:45 AM</u>
Cooler temperature: <u>-1°</u>	Received by: <u>Shane R. Hudson</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives** COC reference: **# LPR-AP-CATF-C**
 Attn: **Kim Mace** Shipping Date: **07/08/2010**
 Shipper: **UPS** Airbill Number: **1219ETBE 014215 6499**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
8/19/2009	10:51	LPR5-ACFT-Ind006	1	Tissue	X	X				
8/25/2009	8:25	LPR6-ACFT-Ind008	1	Tissue	X	X				
8/25/2009	8:25	LPR6-ACFT-Ind009	1	Tissue	X	X				
8/26/2009	7:55	LPR6-ACFT-Ind010	1	Tissue	X	X				
8/27/2009	7:27	LPR6-ACFT-Ind013	1	Tissue	X	X				
8/27/2009	9:48	LPR7-ACFT-Ind014	1	Tissue	X	X				
8/29/2009	11:11	LPR6-ACFT-Ind016	1	Tissue	X	X				
8/29/2009	12:06	LPR7-ACFT-Ind017	1	Tissue	X	X				
9/2/2009	14:13	LPR2-ACFT-Ind018	1	Tissue	X	X				
9/8/2009	8:04	LPR8-ACFT-Ind019	1	Tissue	X	X				
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: Windward Environmental LLC Date/Time: 7/8/10 1535 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 9 July-10	Laboratory W.O. #:
Condition upon receipt: GOOD	Time of receipt: 10:45 AM
Cooler temperature: -1°	Received by: Suzanne R. Hudson

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives** COC reference: **# LPR-AP-CATF-D**
 Attn: **Kim Mace** Shipping Date: **07/08/2010**
 Shipper: **UPS** Airbill Number: **1Z19E7BE 014215 6499**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)			
9/8/2009	8:44	LPR8-ACFT-Ind020	1	Tissue	X	X			
9/8/2009	8:44	LPR8-ACFT-Ind021	1	Tissue	X	X			
9/10/2009	13:02	LPR8-ACFT-Ind022	1	Tissue	X	X			
9/17/2009	11:05	LPR4-ACFT-Ind023	1	Tissue	X	X			
9/18/2009	11:15	LPR5-ACFT-Ind024	1	Tissue	X	X			
Total Number of Containers			5 of 35	Purchase Order / Statement of Work # AP09_05LPR					

1) Released by: *[Signature]*
 Company: *[Signature]*
 Date/Time: *7/8/10 1535*
 Rec'd by: *[Signature]*
 Company: *UPS*
 Date/Time:

2) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

3) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

NOTES
 Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).

To be completed by Laboratory upon sample receipt:



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

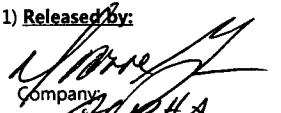
Date of receipt: <i>9-July-10</i>	Laboratory W.O. #:
Condition upon receipt: <i>GOOD</i>	Time of receipt: <i>10:45 am</i>
Cooler temperature: <i>-1°</i>	Received by: <i>Shane R. Hudson</i>

1 of 2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference # LPR-AP-PERF-A
 Attn: Kim Mace Shipping Date: 07/13/2010
 Shipper: UPS Airbill Number: 1219E18E 01 4149 9791
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
8/11/2009	9:56	LPR3-MAFT-Comp02	1	Tissue	X	X				
8/11/2009	10:08	LPR3-MAFT-Comp03	1	Tissue	X	X				
8/12/2009	9:24	LPR3-MAFT-Comp04	1	Tissue	X	X				
8/13/2009	10:00	LPR3-MAFT-Comp05	1	Tissue	X	X				
8/13/2009	11:52	LPR3-MAFT-Comp07	1	Tissue	X	X				
8/13/2009	11:52	LPR3-MAFT-Comp08	1	Tissue	X	X				
8/14/2009	8:44	LPR3-MAFT-Comp13	1	Tissue	X	X				
8/25/2009	7:30	LPR6-MAFT-Comp24	1	Tissue	X	X				
8/25/2009	9:54	LPR6-MAFT-Ind122	1	Tissue	X	X				
9/1/2009	13:10	LPR1-MAFT-Comp01	1	Tissue	X	X				
Total Number of Containers			10 of 19	Purchase Order / Statement of Work # AP09_05LPR R						
1) Released by:  Company: <u>UPS</u> Date/Time: <u>7/13/10 15:15</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

* Samples in this project

Windward
 environmental LLC

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 Fax: (206) 217-9343

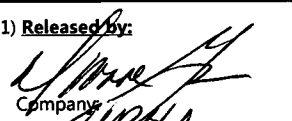
To be completed by Laboratory upon sample receipt:

Date of receipt: <u>14 Jul 10</u>	Laboratory W.O. #: <u>P2426</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>9:49 AM</u>
Cooler temperature: <u>-4°</u>	Received by: <u>[Signature]</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives** COC reference: **# LPR-AP-PERF-B**
 Attn: **Kim Mace** Shipping Date: **07/13/2010**
 Shipper: **UPS** Airbill Number: **1Z19E18E 01 4149 9791**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

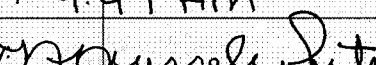
Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (Jar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
* 9/10/2009	8:38	LPR8-MAFT-Comp26	1	Tissue	X	X				
* 9/10/2009	9:30	LPR8-MAFT-Comp31	1	Tissue	X	X				
* 9/12/2009	9:35	LPR8-MAFT-Comp27	1	Tissue	X	X				
* 9/18/2009	10:35	LPR5-MAFT-Comp20	1	Tissue	X	X				
* 9/18/2009	10:35	LPR5-MAFT-Comp21	1	Tissue	X	X				
* 9/18/2009	11:57	LPR5-MAFT-Comp22	1	Tissue	X	X				
* 9/18/2009	13:50	LPR4-MAFT-Comp16	1	Tissue	X	X				
* 9/18/2009	14:10	LPR4-MAFT-Comp17	1	Tissue	X	X				
* 9/2/2009	15:46	LPR1-MAFT-Ind145	1	Tissue	X	X				
Total Number of Containers			9 of 19	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: Alpha Date/Time: 7/13/10 1515 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

* Samples in this project

Windward
 environmental LLC

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 Suite 401
 Seattle, WA 98119
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 Fax: (206) 217-9343

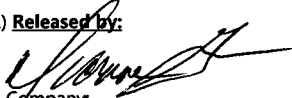
To be completed by Laboratory upon sample receipt:

Date of receipt: 14 Jul 10	Laboratory W.O. #: P2427
Condition upon receipt: good	Time of receipt: 9:49 AM
Cooler temperature: -4°	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference # LPR-AP-PERWB-A
 Attn: Kim Mace Shipping Date: 07/13/2010
 Shipper: UPS Airbill Number: 1Z19E7BE 01 449 9791
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (lar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
* 9/2/2009	15:46	LPR1-MACT-Ind145	1	Tissue	X	X				
* 8/11/2009	7:21	LPR3-MAWB-Comp06	1	Tissue	X	X				
* 8/13/2009	11:52	LPR3-MAWB-Comp09	1	Tissue	X	X				
* 8/13/2009	11:52	LPR3-MAWB-Comp10	1	Tissue	X	X				
* 8/13/2009	11:52	LPR3-MAWB-Comp11	1	Tissue	X	X				
* 8/13/2009	11:52	LPR3-MAWB-Comp12	1	Tissue	X	X				
* 8/13/2009	11:52	LPR3-MAWB-Comp30	1	Tissue	X	X				
* 8/25/2009	11:09	LPR7-MAWB-Ind123	1	Tissue	X	X				
* 8/26/2009	10:37	LPR7-MAWB-Comp25	1	Tissue	X	X				
* 8/27/2009	6:56	LPR6-MAWB-Ind128	1	Tissue	X	X				
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # AP09_05LPR R						
1) Released by:  Company: <u>ALPHA</u> Date/Time: <u>7/13/10 1575</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

* Samples in this project

Windward
environmental LLC

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 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

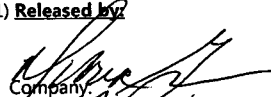
Date of receipt: <u>14 Jul 10</u>	Laboratory W.O. #: <u>P2428</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>9:49 AM</u>
Cooler temperature: <u>-40</u>	Received by: <u>M Russell White</u>

2 of 2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference: # LPR-AP-PERWB-B
 Attn: Kim Mace Shipping Date: 07/13/2010
 Shipper: UPS Airbill Number: 1Z19E78E014149 9791
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

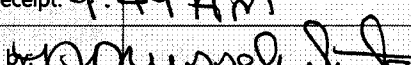
Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (Jar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
* 9/1/2009	12:59	LPR1-MAWB-Ind138	1	Tissue	X	X				
* 9/4/2009	11:25	LPR2-MAWB-Ind158	1	Tissue	X	X				
* 9/7/2009	13:15	LPR8-MAWB-Comp32	1	Tissue	X	X				
* 9/12/2009	9:35	LPR8-MAWB-Comp28	1	Tissue	X	X				
* 9/12/2009	9:35	LPR8-MAWB-Comp29	1	Tissue	X	X				
* 9/15/2009	9:23	LPR4-MAWB-Comp14	1	Tissue	X	X				
* 9/17/2009	9:52	LPR5-MAWB-Comp19	1	Tissue	X	X				
* 9/17/2009	10:04	LPR5-MAWB-Comp18	1	Tissue	X	X				
* 9/18/2009	11:57	LPR5-MAWB-Comp23	1	Tissue	X	X				
* 9/18/2009	13:19	LPR4-MAWB-Comp15	1	Tissue	X	X				
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>7/13/10 1515</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

* Samples in this project

Windward
 environmental LLC

200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

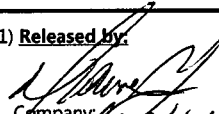
Date of receipt: <u>14 Jul 10</u>	Laboratory W.O. #: <u>P2429</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>9:49 AM</u>
Cooler temperature: <u>-4°</u>	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives**
 Attn: **Kim Mace**
 Shipper: **UPS**
 Form filled out by: **Jennifer Parker/Dianne Janak**

COC reference # **LPR-AP-EELF-A**
 Shipping Date: **07/20/2010**
 Airbill Number: **1219E18E0143752682**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
8/11/2009	8:00	LPR3-ARFT-Comp20	1	Tissue	X	X				
8/11/2009	8:50	LPR3-ARFT-Comp06	1	Tissue	X	X				
8/11/2009	9:13	LPR3-ARFT-Ind005	1	Tissue	X	X				
8/11/2009	11:08	LPR3-ARFT-Comp05	1	Tissue	X	X				
8/12/2009	9:00	LPR3-ARFT-Ind010	1	Tissue	X	X				
8/12/2009	12:28	LPR3-ARFT-Ind014	1	Tissue	X	X				
8/18/2009	8:05	LPR5-ARFT-Comp09	1	Tissue	X	X				
8/18/2009	8:15	LPR5-ARFT-Ind021	1	Tissue	X	X				
8/18/2009	8:42	LPR4-ARFT-Ind022	1	Tissue	X	X				
8/18/2009	12:30	LPR4-ARFT-Ind026	1	Tissue	X	X				
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # AP09_05LPR R						
1) Released by:  Company: Alpha Date/Time: 8/20/10 1640 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

**Samples in this project*

200 West Mercer Street
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 Seattle, WA 98119
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 Fax: (206) 217-9343

Windward
 environmental LLC

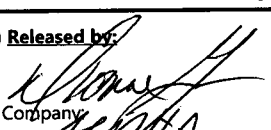
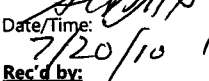
To be completed by Laboratory upon sample receipt:

Date of receipt: 21 Jul 10	Laboratory W.O. #: P2447
Condition upon receipt: good	Time of receipt: 10:21
Cooler temperature: -4	Received by: Armussewhite

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives** COC reference: **# LPR-AP-EELF-B**
 Attn: **Kim Mace** Shipping Date: **07/20/2010**
 Shipper: **UPS** Airbill Number: **129E78E 01 4375 2682**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**


Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
8/19/2009	10:43	LPR5-ARFT-Comp12	1	Tissue	X	X				
8/19/2009	10:51	LPR5-ARFT-Ind030	1	Tissue	X	X				
8/19/2009	12:44	LPR4-ARFT-Comp07	1	Tissue	X	X				
8/19/2009	12:44	LPR4-ARFT-Ind034	1	Tissue	X	X				
8/20/2009	11:59	LPR5-ARFT-Comp10	1	Tissue	X	X				
8/20/2009	12:25	LPR5-ARFT-Ind040	1	Tissue	X	X				
8/20/2009	13:39	LPR4-ARFT-Comp08	1	Tissue	X	X				
8/20/2009	14:42	LPR4-ARFT-Ind044	1	Tissue	X	X				
8/21/2009	11:56	LPR5-ARFT-Ind049	1	Tissue	X	X				
8/21/2009	12:09	LPR5-ARFT-Ind048	1	Tissue	X	X				
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company:  Date/Time: 7/20/10 1640 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

*Samples in this Project

200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Windward
 environmental LLC

To be completed by Laboratory upon sample receipt:

Date of receipt: 21 Jul 10	Laboratory W.O. #: A2447
Condition upon receipt: good	Time of receipt: 10:21
Cooler temperature: -4°	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FOR **COPY**

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives** COC reference: **# LPR-AP-EELF-B**
 Attn: **Kim Mace** Shipping Date: **07/20/2010**
 Shipper: **UPS** Airbill Number: **1219E78E 01 4375 2682**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)			
8/19/2009	10:43	LPR5-ARFT-Comp12	1	Tissue	X	X			
8/19/2009	10:51	LPR5-ARFT-Ind030	1	Tissue	X	X			
8/19/2009	12:44	LPR4-ARFT-Comp07	1	Tissue	X	X			
8/19/2009	12:44	LPR4-ARFT-Ind034	1	Tissue	X	X			
8/20/2009	11:59	LPR5-ARFT-Comp10	1	Tissue	X	X			
8/20/2009	12:25	LPR5-ARFT-Ind040	1	Tissue	X	X			
8/20/2009	13:39	LPR4-ARFT-Comp08	1	Tissue	X	X			
8/20/2009	14:42	LPR4-ARFT-Ind044	1	Tissue	X	X			
8/21/2009	11:56	LPR5-ARFT-Ind049	1	Tissue	X	X			
8/21/2009	12:09	LPR5-ARFT-Ind048	1	Tissue	X	X			
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # AP09_05LPR					
1) Released by: <i>[Signature]</i> Company: <i>[Signature]</i> Date/Time: <i>7/20/10 1640</i> Rec'd by: <i>UPS</i> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

* Samples in this Project

200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Windward
 environmental LLC

To be completed by Laboratory upon sample receipt:

Date of receipt: <i>21 Jul 10</i>	Laboratory W.O. #: <i>P2448</i>
Condition upon receipt: <i>good</i>	Time of receipt: <i>10:21</i>
Cooler temperature: <i>-4°</i>	Received by: <i>[Signature]</i>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference: # LPR-AP-EELF-C
 Attn: Kim Mace Shipping Date: 07/20/2010
 Shipper: UPS Airbill Number: 1219E78E 01 4375 2682
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)			
8/25/2009	9:25	LPR6-ARFT-Ind065	1	Tissue	X	X			Comments / Instructions [Jar tag number(s)]
8/27/2009	11:08	LPR7-ARFT-Ind071	1	Tissue	X	X			
8/29/2009	8:27	LPR6-ARFT-Ind073	1	Tissue	X	X			
9/1/2009	12:55	LPR1-ARFT-Comp01	1	Tissue	X	X			
9/2/2009	15:29	LPR1-ARFT-Comp02	1	Tissue	X	X			
9/5/2009	15:15	LPR5-ARFT-Ind086	1	Tissue	X	X			
9/8/2009	12:32	LPR8-ARFT-Comp17	1	Tissue	X	X			
9/8/2009	13:15	LPR8-ARFT-Comp21	1	Tissue	X	X			
9/8/2009	13:15	LPR8-ARFT-Comp22	1	Tissue	X	X			
9/9/2009	8:25	LPR8-ARFT-Comp14	1	Tissue	X	X			
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # AP09_05LPR					
1) Released by: <i>[Signature]</i> Company: <i>Alpha</i> Date/Time: <i>7/20/10 1640</i> Rec'd by: <i>UB</i> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

**Samples in this Project*
Windward environmental LLC
 200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <i>21 Jul 10</i>	Laboratory W.O. #: <i>P2448</i>
Condition upon receipt: <i>good</i>	Time of receipt: <i>10:21</i>
Cooler temperature: <i>-4°</i>	Received by: <i>[Signature]</i>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

COPY

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference: # LPR-AP-EELF-C
 Attn: Kim Mace Shipping Date: 07/20/2010
 Shipper: UPS Airbill Number: 1219E18E 01 4375 2682
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
8/25/2009	9:25	LPR6-ARFT-Ind065	1	Tissue	X	X				
8/27/2009	11:08	LPR7-ARFT-Ind071	1	Tissue	X	X				
8/29/2009	8:27	LPR6-ARFT-Ind073	1	Tissue	X	X				
* 9/1/2009	12:55	LPR1-ARFT-Comp01	1	Tissue	X	X				
* 9/2/2009	15:29	LPR1-ARFT-Comp02	1	Tissue	X	X				
* 9/5/2009	15:15	LPR5-ARFT-Ind086	1	Tissue	X	X				
* 9/8/2009	12:32	LPR8-ARFT-Comp17	1	Tissue	X	X				
* 9/8/2009	13:15	LPR8-ARFT-Comp21	1	Tissue	X	X				
* 9/8/2009	13:15	LPR8-ARFT-Comp22	1	Tissue	X	X				
* 9/9/2009	8:25	LPR8-ARFT-Comp14	1	Tissue	X	X				
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by: <u>[Signature]</u> Company: <u>Alpha</u> Date/Time: <u>7/20/10 1640</u> Rec'd by: <u>U/B</u> Company: _____ Date/Time: _____		2) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		3) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

*Samples in this project

200 West Mercer Street
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 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Windward
 environmental LLC

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>21 Jul 10</u>	Laboratory W.O. #: <u>P2449</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>10:21</u>
Cooler temperature: <u>-4°</u>	Received by: <u>[Signature]</u>

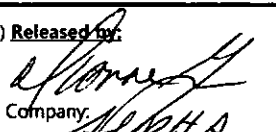
1 of 3

CHAIN-OF-CUSTODY/TEST REQUEST FORM **COPY** P2450 1/3

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives**
 Attn: **Kim Mace**
 Shipper: **UPS**
 Form filled out by: **Jennifer Parker/Dianne Janak**

COC reference: **# LPR-AP-EELWB-A**
 Shipping Date: **07/20/2010**
 Airbill Number: **1219E/BF 01 4375 2682**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions (jar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)			
9/2/2009	14:59	LPR2-ARCT-Comp04	1	Tissue	X	X			
9/5/2009	12:03	LPR1-ARCT-Ind085	1	Tissue	X	X			
8/11/2009	7:46	LPR3-ARWB-Ind001	1	Tissue	X	X			
8/11/2009	11:30	LPR3-ARWB-Ind009	1	Tissue	X	X			
8/12/2009	11:36	LPR3-ARWB-Ind012	1	Tissue	X	X			
8/18/2009	11:28	LPR4-ARWB-Ind024	1	Tissue	X	X			
8/18/2009	12:39	LPR4-ARWB-Ind025	1	Tissue	X	X			
8/20/2009	12:30	LPR5-ARWB-Ind039	1	Tissue	X	X			
8/20/2009	14:42	LPR4-ARWB-Ind043	1	Tissue	X	X			
8/21/2009	11:50	LPR5-ARWB-Comp11	1	Tissue	X	X			
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # AP09_05LPR R					
1) Released by:  Company: Alpha Date/Time: 7/20/10 1640 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

** Samples in this project*

Windward environmental LLC
 200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 21 Jul 10	Laboratory W.O. #: P2450
Condition upon receipt: good	Time of receipt: 10:21
Cooler temperature: -4°	Received by: Amusselwhite

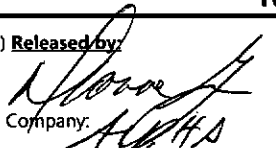
2 of 3

CHAIN-OF-CUSTODY/TEST REQUEST FORM

P245D 2/3

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference: # LPR-AP-EELWB-B
 Attn: Kim Mace Shipping Date: 07/20/2010
 Shipper: UPS Airbill Number: 1Z9C78E 01 4375 2682
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (lar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
8/22/2009	8:17	LPR4-ARWB-Ind060	1	Tissue	X	X				
8/22/2009	9:22	LPR5-ARWB-Ind062	1	Tissue	X	X				
8/27/2009	8:08	LPR7-ARWB-Ind070	1	Tissue	X	X				
8/27/2009	8:47	LPR6-ARWB-Ind069	1	Tissue	X	X				
* 8/29/2009	10:49	LPR6-ARWB-Ind074	1	Tissue	X	X				
* 9/3/2009	12:37	LPR1-ARWB-Comp03	1	Tissue	X	X				
* 9/7/2009	14:00	LPR8-ARWB-Comp16	1	Tissue	X	X				
* 9/8/2009	10:30	LPR8-ARWB-Comp15	1	Tissue	X	X				
* 9/8/2009	12:32	LPR8-ARWB-Comp18	1	Tissue	X	X				
* 9/9/2009	7:49	LPR8-ARWB-Comp13	1	Tissue	X	X				
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>5/20/10 1640</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

* Samples in this Project

Windward
 environmental LLC

200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>21 Jul 10</u>	Laboratory W.O. #: <u>P245D</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>10:21</u>
Cooler temperature: <u>-4°</u>	Received by: <u>W. Musselwhite</u>

P245D 3/3

To:	Analytical Perspectives	COC reference:	# LPR-AP-EELWB-C
Attn:	Kim Mace	Shipping Date:	07/20/2010
Shipper:	UPS	Airbill Number:	1219018E 01 4375
Form filled out by:	Jennifer Parker/Dianne Janak	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
9/9/2009	11:25	LPR8-ARWB-Comp19	1	Tissue	X	X				Comments / Instructions [lar tag number(s)]
Total Number of Containers			1 of 21	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by: Company: ALPHA Date/Time: 7/20/10 1640 Rec'd by: VPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

* Samples in this project

Wind/Ward
environmental LLC

200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 21 Jul 10	Laboratory W.O. #: P2450
Condition upon receipt: good	Time of receipt: 10:21
Cooler temperature: -4°	Received by: Y. H. Hsu

1 of 3

CHAIN-OF-CUSTODY/TEST REQUEST FORM

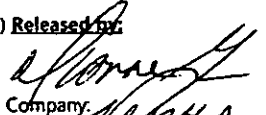
COPY

P2451 1/2

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Analytical Perspectives**
 Attn: **Kim Mace**
 Shipper: **UPS**
 Form filled out by: **Jennifer Parker/Dianne Janak**

COC reference: **# LPR-AP-EELWB-A**
 Shipping Date: **07/20/2010**
 Airbill Number: **1219E18E 01 4375 2682**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
9/2/2009	14:59	LPR2-ARCT-Comp04	1	Tissue	X	X				
9/5/2009	12:03	LPR1-ARCT-Ind085	1	Tissue	X	X				
* 8/11/2009	7:46	LPR3-ARWB-Ind001	1	Tissue	X	X				
* 8/11/2009	11:30	LPR3-ARWB-Ind009	1	Tissue	X	X				
* 8/12/2009	11:36	LPR3-ARWB-Ind012	1	Tissue	X	X				
* 8/18/2009	11:28	LPR4-ARWB-Ind024	1	Tissue	X	X				
* 8/18/2009	12:39	LPR4-ARWB-Ind025	1	Tissue	X	X				
* 8/20/2009	12:30	LPR5-ARWB-Ind039	1	Tissue	X	X				
* 8/20/2009	14:42	LPR4-ARWB-Ind043	1	Tissue	X	X				
* 8/21/2009	11:50	LPR5-ARWB-Comp11	1	Tissue	X	X				
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # AP09_05LPR R						
1) Released by:  Company: Alpha Date/Time: 7/20/10 1640 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

*Samples in this Project

Windward
 environmental LLC

200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 21 Jul 10	Laboratory W.O. #: P2451
Condition upon receipt: good	Time of receipt: 10:21
Cooler temperature: -4°	Received by: Amusselwhite

COPY

P2451 2/2

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives
 Attn: Kim Mace
 Shipper: UPS
 Form filled out by: Jennifer Parker/Dianne Janak

COC reference: # LPR-AP-EELWB-B
 Shipping Date: 07/20/2010
 Airbill Number: 1Z9E78E 01 4375 2682
 Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (Jar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
8/22/2009	8:17	LPR4-ARWB-Ind060	1	Tissue	X	X				
8/22/2009	9:22	LPR5-ARWB-Ind062	1	Tissue	X	X				
8/27/2009	8:08	LPR7-ARWB-Ind070	1	Tissue	X	X				
8/27/2009	8:47	LPR6-ARWB-Ind069	1	Tissue	X	X				
8/29/2009	10:49	LPR6-ARWB-Ind074	1	Tissue	X	X				
9/3/2009	12:37	LPR1-ARWB-Comp03	1	Tissue	X	X				
9/7/2009	14:00	LPR8-ARWB-Comp16	1	Tissue	X	X				
9/8/2009	10:30	LPR8-ARWB-Comp15	1	Tissue	X	X				
9/8/2009	12:32	LPR8-ARWB-Comp18	1	Tissue	X	X				
9/9/2009	7:49	LPR8-ARWB-Comp13	1	Tissue	X	X				
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by: <u>[Signature]</u> Company: <u>Alpha</u> Date/Time: <u>9/20/10 1640</u> Rec'd by: <u>UPB</u> Company: _____ Date/Time: _____		2) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		3) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

* Samples in this Project

Windward
environmental LLC

200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

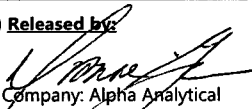
To be completed by Laboratory upon sample receipt:

Date of receipt: <u>21 Jul 10</u>	Laboratory W.O. #: <u>P2451</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>10:21</u>
Cooler temperature: <u>-4°</u>	Received by: <u>[Signature]</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Analytical Perspectives		# LPR-AP-RB1
Attn:	Kim Mace	Shipping Date:	03/24/2010
Shipper:	UPS	Airbill Number:	1Z19E18E 01 4274 8271
Form filled out by:	Ellen Collins/Diane Janak	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
3/23/2010	16:21	LPR-032310-RB	2	Water	X	X				
Total Number of Containers			2	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: Alpha Analytical Date/Time: 3/24/10 1530 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES		



Windward
environmental LLC

200 West Mercer Street
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Tel: (206) 378-1364
Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 25 mar 10	Laboratory W.O. #: P2463
Condition upon receipt: good	Time of receipt: 10:18
Cooler temperature: 3°	Received by: [signature]

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Date of receipt: 13 Apr 10	Laboratory W.O. #: P2463
Condition upon receipt: good	Time of receipt: 10:28 AM
Cooler temperature: 3°	Received by: Y. H. Hsu

1

of

1

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Analytical Perspectives COC reference # LPR-AP-RB3
 Attn: Kim Mace Shipping Date: 06/08/2010
 Shipper: UPS Airbill Number: 1Z19E18E0142561881
 Form filled out by: Jennifer Parker/Ellen Collins Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
6/8/2010	13:30	LPR-060810-RB	2	Water	X	X				
Total Number of Containers			2	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by: <i>[Signature]</i> Company: Date/Time: 6/8/10 1635 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES				



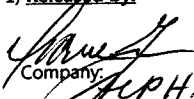
200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>9 June 10</u>	Laboratory W.O. #: <u>P2463</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>1:42pm</u>
Cooler temperature: <u>2°</u>	Received by: <u>[Signature]</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

To:	Analytical Perspectives	COC reference	# LPR-AP-RB4
Attn:	Kim Mace	Shipping Date:	06/15/2010
Shipper:	UPS	Airbill Number:	1219ETBE 014181 4672
Form filled out by:	Jennifer Parker/Ellen Collins	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (Jar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
6/15/2010	14:15	LPR-061510-RB	2	Water	X	X				
Total Number of Containers			2	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: ALPHA Date/Time: 6/15/10 1450 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES				

To be completed by Laboratory upon sample receipt:





200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

Date of receipt: 16 June 10	Laboratory W.O. #: P2463
Condition upon receipt: good	Time of receipt: 10:29 AM
Cooler temperature: -1°	Received by: W. Musselwhite

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	<u>Passaic RI/FS Tissue</u>
Project Number:	<u>09.58.02.31</u>
Contact Name:	<u>Jennifer Parker</u>
Sampled By:	<u>Windward Environmental LLC</u>

To:	Analytical Perspectives	COC reference	# LPR-AP-RB5
Attn:	Kim Mace	Shipping Date:	06/29/2010
Shipper:	UPS	Airbill Number:	1Z19E18E014296 3509
Form filled out by:	Jennifer Parker/Ellen Collins	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (Jar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
6/29/2010	10:40	LPR-062910-RB	2	Water	X	X				
Total Number of Containers			2	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company:  Date/Time: 6/29/10 1445 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES				



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Tel: (206) 378-1364
Fax: (206) 217-9343

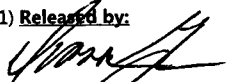
To be completed by Laboratory upon sample receipt:

Date of receipt: 30 June 10	Laboratory W.O. #: P2463
Condition upon receipt: good	Time of receipt: 10:15
Cooler temperature: 0°	Received by: Y. Musselwhite

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	<u>Passaic RI/FS Tissue</u>
Project Number:	<u>09.58.02.31 (Task 16.1)</u>
Contact Name:	<u>Jennifer Parker</u>
Sampled By:	<u>Windward Environmental LLC</u>

To:	Analytical Perspectives	COC reference	# LPR-AP-RB6
Attn:	Kim Mace	Shipping Date:	07/13/2010
Shipper:	UPS	Airbill Number:	1Z19E78E0142892309
Form filled out by:	Jennifer Parker/Ellen Collins	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (lar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
07/13/10	8:15	LPR-071310-RB	2	Water	X	X				
Total Number of Containers			2	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: ALPHA Date/Time: 7/13/10 1035 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES				

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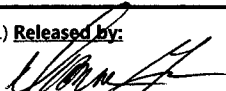
200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 14 Jul 10	Laboratory W.O. #: P2463
Condition upon receipt: good	Time of receipt: 9:49 AM
Cooler temperature: -3°	Received by: [Signature]

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31 (Task 16.1)
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Analytical Perspectives	COC reference	# LPR-AP-RB7
Attn:	Kim Mace	Shipping Date:	07/19/2010
Shipper:	UPS	Airbill Number:	1219E18E 014220 4632
Form filled out by:	Jennifer Parker/Ellen Collins	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (Jar tag number(s))
					PCB Congeners (1668A)	PCDDs/PCDFs (1613B)				
7/19/2010	12:30	LPR-071910-RB	2	Water	X	X				
Total Number of Containers			2	Purchase Order / Statement of Work # AP09_05LPR						
1) Released by:  Company: UPS Date/Time: 7/19/10 1605 Rec'd by: UPS		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES				



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Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

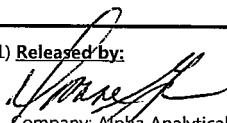
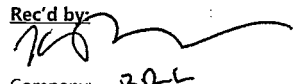
Date of receipt: 20 Jul 10	Laboratory W.O. #: P2463
Condition upon receipt: good	Time of receipt: 10:00
Cooler temperature: 3°	Received by: [Signature]

Brooks Rand Labs

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

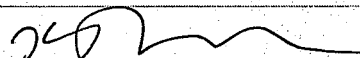
To: **Brooks Rand Labs** # LPR-BRL-MH-1A
 Attn: **Misty Kennard-Mayer** Shipping Date: **03/23/2010**
 Shipper: **UPS** Airbill Number: **1Z 19E 18E 014 100 5224**
 Form filled out by: **Jennifer Parker / Diane Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)		
8/26/2009	07:12	LPR6-CSMH-Comp37	1	Tissue	X	X	X		
9/15/2009	09:58	LPR6-CSMH-Comp38	1	Tissue	X	X	X		
8/20/2009	13:03	LPR4-CSMH-Comp31	1	Tissue	X	X	X		
8/27/2009	07:13	LPR6-CSMH-Comp41	1	Tissue	X	X	X		
8/25/2009	07:26	LPR6-CSMH-Comp42	1	Tissue	X	X	X		
8/27/2009	07:52	LPR6-CSMH-Comp44	1	Tissue	X	X	X		
8/25/2009	09:24	LPR7-CSMH-Comp45	1	Tissue	X	X	X		
8/25/2009	09:24	LPR7-CSMH-Comp46	1	Tissue	X	X	X		
8/25/2009	09:35	LPR7-CSMH-Comp49	1	Tissue	X	X	X		
8/26/2009	08:58	LPR7-CSMH-Comp53	1	Tissue	X	X	X		
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # BRL09_01LPR					
1) Released by:  Company: Alpha Analytical Date/Time: 3/23/10 1610 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by:  Company: BRL Date/Time: 3.24.10 0930		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.	



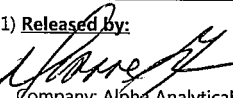
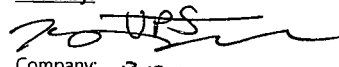
200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 3.24.10	Laboratory W.O. #: 1013010
Condition upon receipt: good	Time of receipt: 0930
Cooler temperature: -27C	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

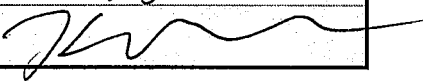
Project/Client Name: Passaic RI/FS Tissue To: Brooks Rand Labs # LPR-BRL-MH-1B
 Project Number: 09.58.02.31 Attn: Misty Kennard-Mayer Shipping Date: 03/23/2010
 Contact Name: Jennifer Parker Shipper: UPS Airbill Number: 1Z 19E18E 014100 5224
 Sampled By: Windward Environmental LLC Form filled out by: Jennifer Parker / Diane Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
9/10/2009	13:02	LPR8-CSMH-Comp61	1	Tissue	X	X	X			
8/25/2009	09:39	LPR7-CSMH-Comp48	1	Tissue	X	X	X			
9/9/2009	09:54	LPR8-CSMH-Comp54	1	Tissue	X	X	X			
8/25/2009	09:35	LPR7-CSMH-Comp50	1	Tissue	X	X	X			
9/9/2009	09:54	LPR8-CSMH-Comp55	1	Tissue	X	X	X			
9/8/2009	08:44	LPR8-CSMH-Comp56	1	Tissue	X	X	X			
9/9/2009	08:56	LPR8-CSMH-Comp57	1	Tissue	X	X	X			
9/1/2009	12:33	LPR1-CSMH-Comp01	1	Tissue	X	X	X			
9/2/2009	15:02	LPR1-CSMH-Comp02	1	Tissue	X	X	X			
9/2/2009	15:46	LPR1-CSMH-Comp03	1	Tissue	X	X	X			
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # BRL09_01LPR						
1) Released by:  Company: Alpha Analytical Date/Time: 3/23/10 1610 Rec'd by:  Company: BRL Date/Time: 3.24.10 0930		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.		



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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 3.24.10	Laboratory W.O. #: 1013010
Condition upon receipt: 3.24.10	Time of receipt: 0930
Cooler temperature: -27°C	Received by: 

1

Date of receipt: 3.25.10	Laboratory W.O. #: 1013010
Condition upon receipt: good	Time of receipt: 0930
Cooler temperature: 2.4	Received by: [Signature]

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue To: Brooks Rand Labs # LPR-BRL-CT-A
 Project Number: 09.58.02.31 Attn: Misty Kennard-Mayer Shipping Date: 4/7/10
 Contact Name: Jennifer Parker Shipper: Jennifer Parker Airbill Number: 1219E18E 01/4/19 0962
 Sampled By: Windward Environmental LLC Form filled out by: Jennifer Parker Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
8/20/2009	13:03	LPR4-CSCT-Comp31	1	Tissue	X	X	X			
9/1/2009	12:33	LPR1-CSCT-Comp01	1	Tissue	X	X	X			
9/2/2009	15:02	LPR1-CSCT-Comp02	1	Tissue	X	X	X			
9/2/2009	15:46	LPR1-CSCT-Comp03	1	Tissue	X	X	X			
9/2/2009	15:46	LPR1-CSCT-Comp04	1	Tissue	X	X	X			
9/1/2009	14:04	LPR1-CSCT-Comp06	1	Tissue	X	X	X			
9/2/2009	16:33	LPR1-CSCT-Comp07	1	Tissue	X	X	X			
9/2/2009	12:49	LPR1-CSCT-Comp11	1	Tissue	X	X	X			
8/18/2009	11:41	LPR4-CSCT-Comp30	1	Tissue	X	X	X			
9/1/2009	12:49	LPR1-CSCT-Comp13	1	Tissue	X	X	X			
Total Number of Containers			10 of 24	Purchase Order / Statement of Work # BRL09_01LPR						
1) Released by: <u>[Signature]</u> Company: <u>UPS</u> Date/Time: <u>4/7/10 1510</u> Rec'd by: <u>[Signature]</u> Company: <u>UPS</u> Date/Time:		2) Released by: <u>[Signature]</u> Company: <u>BRL</u> Date/Time: <u>4/8/10 1000</u> Rec'd by: <u>[Signature]</u> Company: <u>BRL</u> Date/Time:		3) Released by: <u>[Signature]</u> Company: <u>BRL</u> Date/Time: <u>4/8/10 1000</u> Rec'd by: <u>[Signature]</u> Company: <u>BRL</u> Date/Time:		4) Released by: <u>[Signature]</u> Company: <u>BRL</u> Date/Time: <u>4/8/10 1000</u> Rec'd by: <u>[Signature]</u> Company: <u>BRL</u> Date/Time:		5) Released by: <u>[Signature]</u> Company: <u>BRL</u> Date/Time: <u>4/8/10 1000</u> Rec'd by: <u>[Signature]</u> Company: <u>BRL</u> Date/Time:		



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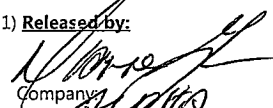
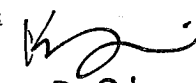
To be completed by Laboratory upon sample receipt:

Date of receipt: <u>4/8/10</u>	Laboratory W.O. #: <u>1015017</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>1000</u>
Cooler temperature: <u>1.3C</u>	Received by: <u>Katie Tahanmir</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Brooks Rand Labs** # LPR-BRL-CT-B
 Attn: **Misty Kennard-Mayer** Shipping Date: **4/7/10**
 Shipper: **Jennifer Parker** Airbill Number: **1219E18E 01 4119 0962**
 Form filled out by: **Jennifer Parker** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
9/1/2009	12:09	LPR2-CSCT-Comp14	1	Tissue	X	X	X			
9/1/2009	11:03	LPR2-CSCT-Comp17	1	Tissue	X	X	X			
9/1/2009	10:02	LPR2-CSCT-Comp15	1	Tissue	X	X	X			
9/3/2009	12:35	LPR2-CSCT-Comp18	1	Tissue	X	X	X			
9/1/2009	11:32	LPR2-CSCT-Comp19	1	Tissue	X	X	X			
9/1/2009	11:32	LPR2-CSCT-Comp20	1	Tissue	X	X	X			
8/11/2009	10:08	LPR3-CSCT-Comp24	1	Tissue	X	X	X			
8/18/2009	07:43	LPR5-CSCT-Comp34	1	Tissue	X	X	X			
8/12/2009	10:29	LPR3-CSCT-Comp26	1	Tissue	X	X	X			
8/18/2009	10:35	LPR4-CSCT-Comp32	1	Tissue	X	X	X			
Total Number of Containers			10 of 24	Purchase Order / Statement of Work # BRL09_01LPR						
1) Released by:  Company: UPS Date/Time: 4/7/10 1510 Rec'd by: Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by:  Company: BRL Date/Time: 4/8/10 1000		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		

To be completed by Laboratory upon sample receipt:

Date of receipt: 4/8/10	Laboratory W.O. #: 1015017
Condition upon receipt: good	Time of receipt: 1000
Cooler temperature: 1.3C	Received by: Katie Jahannmir



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 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Brooks Rand Labs** # LPR-BRL-CT-C
 Attn: **Misty Kennard-Mayer** Shipping Date: **4/7/10**
 Shipper: **Jennifer Parker** Airbill Number: **1219E18E 01 4119 0962**
 Form filled out by: **Jennifer Parker** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
8/18/2009	12:01	LPR4-CSCT-Comp33	1	Tissue	X	X	X			
8/11/2009	07:21	LPR3-CSCT-Comp27	1	Tissue	X	X	X			
8/13/2009	11:52	LPR3-CSCT-Comp28	1	Tissue	X	X	X			
8/21/2009	13:46	LPR5-CSCT-Comp35	1	Tissue	X	X	X			
Total Number of Containers			4 of 24	Purchase Order / Statement of Work # BRL09_01LPR						

1) Released by: <i>[Signature]</i> Company: <i>[Signature]</i> Date/Time: <i>4/7/10 1510</i> Rec'd by: <i>UPS</i> Company: <i>UPS</i> Date/Time:	2) Released by: Company: Date/Time: Rec'd by: <i>[Signature]</i> Company: <i>BRL</i> Date/Time: <i>4/8/10 1000</i>	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:
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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

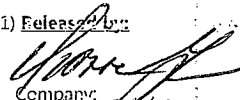
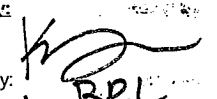
Date of receipt: <i>4/8/10</i>	Laboratory W.O. #: <i>1015017</i>
Condition upon receipt: <i>good</i>	Time of receipt: <i>1000</i>
Cooler temperature: <i>1.3C</i>	Received by: <i>Katie Tahanmir</i>

1 of 2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Brooks Rand Labs** # LPR-BRL-MH-2A
 Attn: **Misty Kennard-Mayer** Shipping Date: **4/7/10**
 Shipper: **Jennifer Parker** Airbill Number: **1219E18E0142702915**
 Form filled out by: **Jennifer Parker** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (Jar tag number(s))
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
9/8/2009	09:50	LPR8-CSMH-Comp58	1	Tissue	X	X	X			
9/1/2009	14:04	LPR1-CSMH-Comp06	1	Tissue	X	X	X			
9/2/2009	16:33	LPR1-CSMH-Comp07	1	Tissue	X	X	X			
9/2/2009	12:49	LPR1-CSMH-Comp11	1	Tissue	X	X	X			
8/20/2009	13:03	LPR4-CSMH-Comp30	1	Tissue	X	X	X			WW Note: Correct collection date/time for LPR4-CSMH-Comp30 is 8/18/2009 at 11:41.
9/1/2009	12:49	LPR1-CSMH-Comp13	1	Tissue	X	X	X			
9/1/2009	12:09	LPR2-CSMH-Comp14	1	Tissue	X	X	X			
9/1/2009	11:03	LPR2-CSMH-Comp17	1	Tissue	X	X	X			
9/1/2009	10:02	LPR2-CSMH-Comp15	1	Tissue	X	X	X			
9/3/2009	12:35	LPR2-CSMH-Comp18	1	Tissue	X	X	X			
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # BRL09_01LPR						
1) Released by:  Company: ALPHA Date/Time: 4/7/10 1400 Rec'd by: UPS Company: _____ Date/Time: _____		2) Released by: _____ Company: _____ Date/Time: _____ Rec'd by:  Company: BRL Date/Time: 4/8/10 1000		3) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		4) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		5) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		

Windward
environmental LLC

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 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 4/8/10	Laboratory W.O. #: 1015017
Condition upon receipt: good	Time of receipt: 1000
Cooler temperature: 1.1C	Received by: Katie Tahannir

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs # LPR-BRL-MH-2Brev
 Attn: Misty Kennard-Mayer Shipping Date: _____
 Shipper: _____ Airbill Number: _____
 Form filled out by: Jennifer Parker Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
9/1/2009	11:32	LPR2-CSMH-Comp19	1	Tissue	X	X	X			
9/1/2009	11:32	LPR2-CSMH-Comp20	1	Tissue	X	X	X			
8/11/2009	10:08	LPR3-CSMH-Comp24	1	Tissue	X	X	X			
8/18/2009	07:43	LPR5-CSMH-Comp34	1	Tissue	X	X	X			Alpha ID L1003087-36 on bag
8/12/2009	10:29	LPR3-CSMH-Comp26	1	Tissue	X	X	X			
8/18/2009	10:35	LPR4-CSMH-Comp32	1	Tissue	X	X	X			
8/18/2009	12:01	LPR4-CSMH-Comp33	1	Tissue	X	X	X			
8/11/2009	07:21	LPR3-CSMH-Comp27	1	Tissue	X	X	X			
8/13/2009	11:52	LPR3-CSMH-Comp28	1	Tissue	X	X	X			
8/21/2009	13:46	LPR5-CSMH-Comp35	1	Tissue	X	X	X			
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # BRL09_01LPR						
1) Released by: Company: Date/Time: Rec'd by: <i>[Signature]</i> Company: <i>BRL</i> Date/Time: <i>4/8/10 1000</i>		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		



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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <i>4/8/10</i>	Laboratory W.O. #: <i>1015017</i>
Condition upon receipt: <i>good</i>	Time of receipt: <i>1000</i>
Cooler temperature: <i>1.1C</i>	Received by: <i>Katie Tahanmir</i>

CORRECTED COPY, EMAILED BY CLIENT

1

Date of receipt: 4/13/10	Laboratory W.O. #: 1016012
Condition upon receipt: good	Time of receipt: 900
Cooler temperature: 2.1C	Received by: Katie Tahanmiz

1

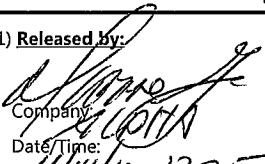
of

1

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs # LPR-BRL-HT-A
 Attn: Misty Kennard-Mayer Shipping Date: 4/14/2010
 Shipper: UPS Airbill Number: 1219E18E 014298 3845
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]	
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
9/1/2009	13:10	LPR1-CSHT-Comp05	1	Tissue	X	X	X			
9/1/2009	11:03	LPR2-CSHT-Comp63	1	Tissue	X	X	X			
9/3/2009	11:10	LPR1-CSHT-Comp09	1	Tissue	X	X	X			
8/11/2009	07:21	LPR3-CSHT-Comp64	1	Tissue	X	X	X			
9/2/2009	14:13	LPR2-CSHT-Comp21	1	Tissue	X	X	X			
8/25/2009	09:24	LPRX-CSHT-Comp65	1	Tissue	X	X	X			
9/8/2009	07:48	LPR8-CSHT-Comp66	1	Tissue	X	X	X			
Total Number of Containers			7	Purchase Order / Statement of Work # BRL09_01LPR						
1) Released by:  Company: <u>Windward Environmental LLC</u> Date/Time: <u>4/14/10 1325</u> Rec'd by: <u>UPS</u> Company: <u>BRL</u> Date/Time: <u>4/15/10 930</u>		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.		



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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>4/15/10</u>	Laboratory W.O. #: <u>1016012</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>930</u>
Cooler temperature: <u>-7.5C</u>	Received by: <u>Katie Jahannmir</u>

1

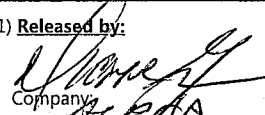
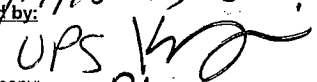
of

3

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Brooks Rand Labs** # LPR-BRL-MT-A
 Attn: **Misty Kennard-Mayer** Shipping Date: **4/14/2010**
 Shipper: **UPS** Airbill Number: **1Z19K18E01 4298 3845**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)		
8/28/2009	8:50	LPR7-CSMT-Comp52	1	Tissue	X	X	X		
9/1/2009	14:04	LPR1-CSMT-Comp08	1	Tissue	X	X	X		
9/2/2009	12:08	LPR1-CSMT-Comp10	1	Tissue	X	X	X		
9/3/2009	12:00	LPR1-CSMT-Comp12	1	Tissue	X	X	X		
9/2/2009	12:26	LPR2-CSMT-Comp16	1	Tissue	X	X	X		
9/17/2009	11:27	LPR6-CSMT-Comp39	1	Tissue	X	X	X		
9/1/2009	11:46	LPR2-CSMT-Comp22	1	Tissue	X	X	X		
9/1/2009	11:07	LPR2-CSMT-Comp23	1	Tissue	X	X	X		
8/27/2009	06:50	LPR6-CSMT-Comp40	1	Tissue	X	X	X		
8/12/2009	09:24	LPR3-CSMT-Comp25	1	Tissue	X	X	X		
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # BRL09_01LPR					
1) Released by:  Company: BRL Date/Time: 4/14/10 1325 Rec'd by:  Company: UPS Date/Time: 4/15/10 930		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.	



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To be completed by Laboratory upon sample receipt:

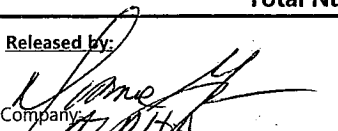
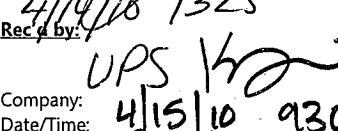
Date of receipt: 4/15/10	Laboratory W.O. #: 1016012
Condition upon receipt: good	Time of receipt: 930
Cooler temperature: -7.5C	Received by: Katie Jahanmir

CHAIN-OF-CUSTODY/TEST REQUEST FORM

1016012

Project/Client Name: Passaic RI/FS Tissue To: Brooks Rand Labs # LPR-BRL-MT-B
 Project Number: 09.58.02.31 Attn: Misty Kennard-Mayer Shipping Date: 4/14/2010
 Contact Name: Jennifer Parker Shipper: UPS Airbill Number: 1219E18E01 4298 3845
 Sampled By: Windward Environmental LLC Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)		
8/27/2009	07:17	LPR6-CSMT-Comp43	1	Tissue	X	X	X		
8/15/2009	7:00	LPR3-CSMT-Comp29	1	Tissue	X	X	X		
8/20/2009	12:20	LPR5-CSMT-Comp36	1	Tissue	X	X	X		
8/26/2009	11:38	LPR7-CSMT-Comp47	1	Tissue	X	X	X		
8/27/2009	08:55	LPR7-CSMT-Comp51	1	Tissue	X	X	X		
9/9/2009	08:56	LPR8-CSMT-Comp59	1	Tissue	X	X	X		
9/9/2009	08:47	LPR8-CSMT-Comp60	1	Tissue	X	X	X		
9/10/2009	13:02	LPR8-CSMT-Comp62	1	Tissue	X	X	X		
9/1/2009	13:10	LPR1-CSMT-Comp05	1	Tissue	X	X	X		
9/3/2009	11:10	LPR1-CSMT-Comp09	1	Tissue	X	X	X		
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # BRL09_01LPR					

1) Released by:  Company: <u>Windward Environmental LLC</u> Date/Time: <u>4/14/10 1325</u> Rec'd by:  Company: <u>UPS</u> Date/Time: <u>4/15/10 930</u> <u>BRL</u>	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.
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200 West Mercer Street
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 Tel: (206) 378-1364
 Fax: (206) 217-9343

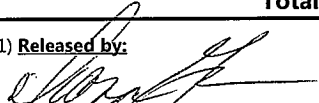

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>4/15/10</u>	Laboratory W.O. #: <u>1016012</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>930</u>
Cooler temperature: <u>-7.5C</u>	Received by: <u>Katie Jahanmir</u>

Date of receipt: 4/15/10	Laboratory W.O. #: 1016012
Condition upon receipt: good	Time of receipt: 930
Cooler temperature: -7.5C	Received by: Katie Tahanmir

CHAIN-OF-CUSTODY/TEST REQUEST FORM

To:	Brooks Rand Labs	COC reference	# LPR-BRL-RB3
Attn:	Misty Kennard-Mayer	Shipping Date:	06/08/2010
Shipper:	UPS	Airbill Number:	1Z19E18E 014197 0271
Form filled out by:	Jennifer Parker/Ellen Collins	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
6/8/2010	13:30	LPR-060810-RB	3	Water	X	X	X			
Total Number of Containers			3	Purchase Order / Statement of Work # BRL09_01LPR						
1) Released by:  Company: <u>ACURA</u> Date/Time: <u>6/8/10 1435</u> Rec'd by:  Company: <u>UPS</u> Date/Time: <u>6/9/10 930</u>		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES				

To be completed by Laboratory upon sample receipt:

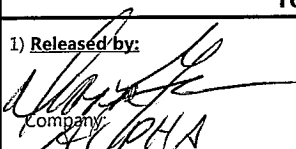
Date of receipt: 6/1/10	Laboratory W.O. #: 1024008
Condition upon receipt: good	Time of receipt: 930
Cooler temperature: 5.0	Received by: Katie Tahannur

1 of 2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs COC reference # LPR-BRL-PI-A
 Attn: Misty Kennard-Mayer Shipping Date: 06/09/2010
 Shipper: UPS Airbill Number: 1Z 19E1BF 01 4223 4930
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)		
8/25/2009	9:54	LPR6-ELFT-Ind001	1	Tissue	X	X	X		
9/19/2009	9:35	LPR5-MSFT-Comp01	1	Tissue	X	X	X		
9/8/2009	10:09	LPR8-MSFT-Ind002	1	Tissue	X	X	X		
9/18/2009	10:35	LPR5-MSFT-Ind009	1	Tissue	X	X	X		
9/18/2009	13:50	LPR4-MDFT-Comp01	1	Tissue	X	X	X		
9/18/2009	10:35	LPR5-MDFT-Comp02	1	Tissue	X	X	X		
9/10/2009	8:40	LPR8-MDFT-Comp03	1	Tissue	X	X	X		
8/25/2009	9:54	LPR6-ELCT-Ind001	1	Tissue	X	X	X		
9/19/2009	9:35	LPR5-MSCT-Comp01	1	Tissue	X	X	X		
9/8/2009	10:09	LPR8-MSCT-Ind002	1	Tissue	X	X	X		
Total Number of Containers			10	Purchase Order / Statement of Work # BRL09_01LPR					
1) Released by:  Company: <u>ALPHA</u> Date/Time: <u>6/9/10 1305</u> Rec'd by: <u>UPS</u> Company: <u>BRL</u> Date/Time: <u>6/10/10</u>		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			



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To be completed by Laboratory upon sample receipt:

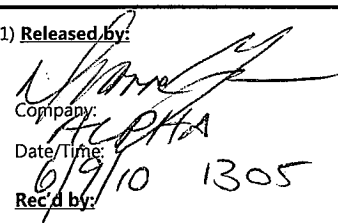
Date of receipt: <u>6/10/10</u>	Laboratory W.O. #: <u>1024008</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>1100</u>
Cooler temperature: <u>1.0 C</u>	Received by: <u>Katie Jahannir</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs
 Attn: Misty Kennard-Mayer
 Shipper: UPS
 Form filled out by: Jennifer Parker/Dianne Janak
 COC reference: # LPR-AA-PI-B
 Shipping Date: 06/09/2010
 Airbill Number: 1219E18E 61 42234930
 Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
9/18/2009	10:35	LPR5-MSCT-Ind009	1	Tissue	X	X	X			Comments / Instructions [Jar tag number(s)]
9/18/2009	13:50	LPR4-MDCT-Comp01	1	Tissue	X	X	X			
9/18/2009	10:35	LPR5-MDCT-Comp02	1	Tissue	X	X	X			
9/10/2009	8:40	LPR8-MDCT-Comp03	1	Tissue	X	X	X			
Total Number of Containers			4	Purchase Order / Statement of Work # BRL09_01LPR						

1) Released by: 
 Company: Alpha
 Date/Time: 6/9/10 1305
 Rec'd by: UPS
 Company:
 Date/Time:

2) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

3) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

NOTES
 Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).



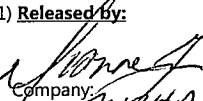

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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>6/10/10</u>	Laboratory W.O. #: <u>1024008</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>1100</u>
Cooler temperature: <u>1.0 C</u>	Received by: <u>Katie Jahanmir</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

To:	<u>Brooks Rand Labs</u>	COC reference	<u># LPR-BRL-RB4</u>
Attn:	<u>Misty Kennard-Mayer</u>	Shipping Date:	<u>06/15/2010</u>
Shipper:	<u>UPS</u>	Airbill Number:	<u>1Z19E1BE 01 4189 4452</u>
Form filled out by:	<u>Jennifer Parker/Ellen Collins</u>	Turnaround requested:	<u>Standard</u>

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
6/15/2010	14:15	LPR-061510-RB	3	Water	X	X	X			
Total Number of Containers			3	Purchase Order / Statement of Work # BRL09_01LPR						
1) <u>Released by:</u>  Company: BRL Date/Time: 6/15/10 1450 <u>Rec'd by:</u>  Company: UPS Date/Time: 6/16/10		2) <u>Released by:</u> Company: Date/Time: <u>Rec'd by:</u> Company: Date/Time:		3) <u>Released by:</u> Company: Date/Time: <u>Rec'd by:</u> Company: Date/Time:		NOTES				

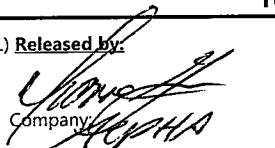
To be completed by Laboratory upon sample receipt:

Date of receipt: 6/16/10	Laboratory W.O. #: 1025019
Condition upon receipt: good	Time of receipt: 900
Cooler temperature: 5.2	Received by: Katie Jahannir

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs COC reference # LPR-BRL-CF-A
 Attn: Misty Kennard-Mayer Shipping Date: 06/16/2010
 Shipper: UPS Airbill Number: 1219E18E014327 5779
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)		
8/11/2009	9:25	LPR3-CCFT-Ind001	1	Tissue	X	X	X		
8/15/2009	8:50	LPR3-CCFT-Ind004	1	Tissue	X	X	X		
8/25/2009	9:54	LPR6-CCFT-Ind032	1	Tissue	X	X	X		
8/27/2009	9:01	LPR7-CCFT-Ind068	1	Tissue	X	X	X		
8/28/2009	9:32	LPR7-CCFT-Ind092	1	Tissue	X	X	X		
8/29/2009	8:10	LPR6-CCFT-Ind104	1	Tissue	X	X	X		
9/8/2009	7:48	LPR8-CCFT-Ind121	1	Tissue	X	X	X		
9/9/2009	9:15	LPR8-CCFT-Ind131	1	Tissue	X	X	X		
9/17/2009	10:49	LPR4-CCFT-Ind155	1	Tissue	X	X	X		
9/17/2009	11:05	LPR4-CCFT-Ind156	1	Tissue	X	X	X		
Total Number of Containers			10 of 12	Purchase Order / Statement of Work # BRL09_01LPR					
1) Released by:  Company: <u>Windward Environmental LLC</u> Date/Time: <u>6/16/10 1545</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			



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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>6/17/10</u>	Laboratory W.O. #: <u>1025019</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>9:00</u>
Cooler temperature: <u>0.8C</u>	Received by: <u>Kate Jahanmir</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	<u>Brooks Rand Labs</u>	COC reference:	<u># LPR-BRL-CF-B</u>
Attn:	<u>Misty Kennard-Mayer</u>	Shipping Date:	<u>06/16/2010</u>
Shipper:	<u>UPS</u>	Airbill Number:	<u>1Z19E13E 01 4327 5779</u>
Form filled out by:	<u>Jennifer Parker/Dianne Janak</u>	Turnaround requested:	<u>Standard</u>

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
9/19/2009	11:00	LPR5-CCFT-Ind181	1	Tissue	X	X	X			
9/19/2009	11:33	LPR5-CCFT-Ind184	1	Tissue	X	X	X			
Total Number of Containers			2 of 12	Purchase Order / Statement of Work # BRL09_01LPR						
1) Released by: Company: Date/Time: 6/16/10 16:1545 <u>Rec'd by:</u> Company: Date/Time: 6/17/10 9:00 BRL		2) Released by: Company: Date/Time: <u>Rec'd by:</u> Company: Date/Time: 6/17/10 9:00 BRL		3) Released by: Company: Date/Time: <u>Rec'd by:</u> Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

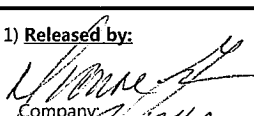

Date of receipt: 6/17/10	Laboratory W.O. #: 1025019
Condition upon receipt: good	Time of receipt: 900
Cooler temperature: 0.8C	Received by: Katie Tahanmir

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Brooks Rand Labs**
 Attn: **Misty Kennard-Mayer**
 Shipper: **UPS**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference: **# LPR-BRL-WB-B**
 Shipping Date: **06/16/2010**
 Airbill Number: **1219E18E 014252 8211**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
9/18/2009	13:50	LPR4-CCWB-Ind175	1	Tissue	X	X	X			
9/19/2009	12:10	LPR4-CCWB-Ind186	1	Tissue	X	X	X			
8/12/2009	9:27	LPR3-ANWB-Ind001	1	Tissue	X	X	X			
8/28/2009	8:05	LPR6-ANWB-Ind004	1	Tissue	X	X	X			
9/16/2009	10:08	LPR4-ANWB-Ind007	1	Tissue	X	X	X			
8/28/2009	7:24	LPR6-ANWB-Ind003	1	Tissue	X	X	X			
8/29/2009	11:01	LPR6-ANWB-Ind005	1	Tissue	X	X	X			
8/29/2009	11:44	LPR7-ANWB-Ind006	1	Tissue	X	X	X			
Total Number of Containers			8 of 18	Purchase Order / Statement of Work # BRL09_01LPR						

1) Released by:  Company: Alpha Date/Time: 6/16/10 1630 Rec'd by:  Company: Date/Time:	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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200 West Mercer Street
 Suite 401
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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 6/17/10	Laboratory W.O. #: 1025019
Condition upon receipt: good	Time of receipt: 900
Cooler temperature: -12C	Received by: Katie Jahanmir

1

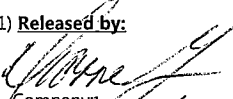
of

2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs COC reference # LPR-BRL-WB-A
 Attn: Misty Kennard-Mayer Shipping Date: 06/16/2010
 Shipper: UPS Airbill Number: 1219E18E0142528211
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
8/11/2009	9:25	LPR3-CCWB-Ind002	1	Tissue	X	X	X			
8/15/2009	8:50	LPR3-CCWB-Ind005	1	Tissue	X	X	X			
8/19/2009	10:03	LPR5-CCWB-Ind011	1	Tissue	X	X	X			
8/25/2009	7:30	LPR6-CCWB-Ind021	1	Tissue	X	X	X			
8/25/2009	8:43	LPR6-CCWB-Ind028	1	Tissue	X	X	X			
8/25/2009	11:33	LPR7-CCWB-Ind042	1	Tissue	X	X	X			
8/27/2009	9:01	LPR7-CCWB-Ind069	1	Tissue	X	X	X			
9/12/2009	7:58	LPR8-CCWB-Ind139	1	Tissue	X	X	X			
9/12/2009	10:57	LPR8-CCWB-Ind147	1	Tissue	X	X	X			
9/18/2009	10:35	LPR5-CCWB-Ind160	1	Tissue	X	X	X			
Total Number of Containers			10 of 18	Purchase Order / Statement of Work # BRL09_01LPR						
1) Released by:  Company: Date/Time: Rec'd by: UPS		2) Released by: Company: Date/Time: Rec'd by:		3) Released by: Company: Date/Time: Rec'd by:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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 Seattle, WA 98119
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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>6/17/10</u>	Laboratory W.O. #: <u>1025019</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>900</u>
Cooler temperature: <u>-12C</u>	Received by: <u>Katie Jahanmir</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	<u>Brooks Rand Labs</u>	COC reference:	<u># LPR-BRL-RB5</u>
Attn:	<u>Misty Kennard-Mayer</u>	Shipping Date:	<u>06/29/2010</u>
Shipper:	<u>UPS</u>	Airbill Number:	<u>1219E18E 0142857286</u>
Form filled out by:	<u>Jennifer Parker/Ellen Collins</u>	Turnaround requested:	<u>Standard</u>

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
6/29/2010	10:40	LPR-062910-RB	3	Water	X	X	X			Comments / Instructions [lar tag number(s)]
Total Number of Containers			3	Purchase Order / Statement of Work # BRL09_01LPR						
1) Released by: Company: Date/Time: Rec'd by: UPS		2) Released by: Company: Date/Time: Rec'd by: Company: BRL Date/Time: 6/30/10 900			3) Released by: Company: Date/Time: Rec'd by: 			NOTES		



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To be completed by Laboratory upon sample receipt:

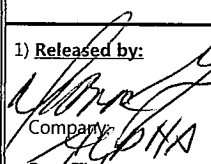
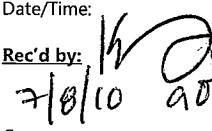
Date of receipt: 6/20/10	Laboratory W.O. #: 1027013
Condition upon receipt: good	Time of receipt: 900
Cooler temperature: 1.5C	Received by: Katie Jahanmiri

CHAIN-OF-CUSTODY/TEST REQUEST FORM

1028015

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs COC reference # LPR-BRL-CATC-A
 Attn: Misty Kennard-Mayer Shipping Date: 07/06/2010
 Shipper: UPS Airbill Number: 1219E18E 014112 7905
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard
01 4274 2515

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
9/12/2009	9:35	LPR8-WSCT-Ind009	1	Tissue	X	X	X			
9/12/2009	11:16	LPR8-WSCT-Ind013	1	Tissue	X	X	X			
9/15/2009	8:34	LPR5-WSCT-Ind019	1	Tissue	X	X	X			
9/18/2009	11:57	LPR5-WSCT-Ind020	1	Tissue	X	X	X			
9/18/2009	14:10	LPR4-WSCT-Ind023	1	Tissue	X	X	X			
8/18/2009	8:15	LPR5-IPCT-Ind001	1	Tissue	X	X	X			
8/25/2009	7:17	LPR6-IPCT-Ind003	1	Tissue	X	X	X			
8/26/2009	8:29	LPR6-IPCT-Ind004	1	Tissue	X	X	X			
8/26/2009	10:18	LPR7-IPCT-Ind005	1	Tissue	X	X	X			
8/27/2009	9:34	LPR7-IPCT-Ind006	1	Tissue	X	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # BRL09_01LPR						
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>7/8/10 1640</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by:  <u>7/8/10 900</u> Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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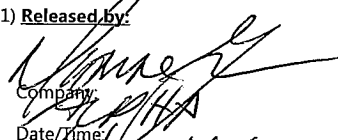
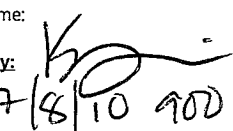
To be completed by Laboratory upon sample receipt:

Date of receipt: <u>7/8/10</u>	Laboratory W.O. #: <u>1028015</u>
Condition upon receipt: <u>5.8/5.9 C</u>	Time of receipt: <u>900</u>
Cooler temperature: <u>good</u>	Received by: <u>Katie Jahanmir</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs COC reference: # LPR-BRL-CATC-B
 Attn: Misty Kennard-Mayer Shipping Date: 07/06/2010
 Shipper: UPS Airbill Number: 1219E18E 014112 7905
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard
01 4274 2515

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
9/9/2009	9:15	LPR8-IPCT-Ind008	1	Tissue	X	X	X			
9/9/2009	9:15	LPR8-IPCT-Ind009	1	Tissue	X	X	X			
9/10/2009	13:02	LPR8-IPCT-Ind010	1	Tissue	X	X	X			
9/10/2009	13:02	LPR8-IPCT-Ind011	1	Tissue	X	X	X			
9/10/2009	13:02	LPR8-IPCT-Ind012	1	Tissue	X	X	X			
9/10/2009	13:02	LPR8-IPCT-Ind013	1	Tissue	X	X	X			
8/11/2009	11:08	LPR3-ACCT-Ind001	1	Tissue	X	X	X			
8/11/2009	11:30	LPR3-ACCT-Ind002	1	Tissue	X	X	X			
8/13/2009	10:26	LPR3-ACCT-Ind003	1	Tissue	X	X	X			
8/14/2009	9:04	LPR3-ACCT-Ind005	1	Tissue	X	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # BRL09_01LPR						
1) Released by:  Company: <u>Windward Environmental LLC</u> Date/Time: <u>7/6/10 1640</u> Rec'd by: <u>UPS</u> Company: _____ Date/Time: _____		2) Released by: Company: _____ Date/Time: _____ Rec'd by:  <u>7/8/10 900</u> Company: _____ Date/Time: _____		3) Released by: Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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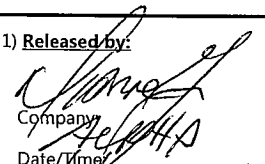

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>7/8/10</u>	Laboratory W.O. #: <u>1028025</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>900</u>
Cooler temperature: <u>5.8/5.9 C</u>	Received by: <u>Katie Tahanmir</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs
 Attn: Misty Kennard-Mayer
 Shipper: UPS
 Form filled out by: Jennifer Parker/Dianne Janak
 COC reference: # LPR-BRL-CATC-C
 Shipping Date: 07/06/2010
 Airbill Number: 1219ETBE 01412 7905
014274 2515
 Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)		
8/19/2009	10:51	LPR5-ACCT-Ind006	1	Tissue	X	X	X		
8/25/2009	8:25	LPR6-ACCT-Ind008	1	Tissue	X	X	X		
8/25/2009	8:25	LPR6-ACCT-Ind009	1	Tissue	X	X	X		
8/26/2009	7:55	LPR6-ACCT-Ind010	1	Tissue	X	X	X		
8/27/2009	7:27	LPR6-ACCT-Ind013	1	Tissue	X	X	X		
8/27/2009	9:48	LPR7-ACCT-Ind014	1	Tissue	X	X	X		
8/29/2009	11:11	LPR6-ACCT-Ind016	1	Tissue	X	X	X		
8/29/2009	12:06	LPR7-ACCT-Ind017	1	Tissue	X	X	X		
9/2/2009	14:13	LPR2-ACCT-Ind018	1	Tissue	X	X	X		
9/8/2009	8:04	LPR8-ACCT-Ind019	1	Tissue	X	X	X		
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # BRL09_01LPR					
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>7/16/10 1640</u> Rec'd by: <u>UB</u> Company: _____ Date/Time: _____		2) Released by: _____ Company: _____ Date/Time: _____ Rec'd by:  <u>7/18/10</u> Company: <u>BRL 908</u> Date/Time: _____		3) Released by: _____ Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			



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To be completed by Laboratory upon sample receipt:

Date of receipt: <u>7/8/10</u>	Laboratory W.O. #: <u>10258015</u>
Condition upon receipt: <u>5/ good</u>	Time of receipt: <u>900</u>
Cooler temperature: <u>5.0 / 5.9c</u>	Received by: <u>Katie Jahanmir</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs
 Attn: Misty Kennard-Mayer
 Shipper: UPS
 Form filled out by: Jennifer Parker/Dianne Janak
 COC reference: # LPR-BRL-CATC-D
 Shipping Date: 07/06/2010
 Airbill Number: 1219678E 014112 7905
01 4274 2515
 Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
9/8/2009	8:44	LPR8-ACCT-Ind020	1	Tissue	X	X	X			
9/8/2009	8:44	LPR8-ACCT-Ind021	1	Tissue	X	X	X			
9/10/2009	13:02	LPR8-ACCT-Ind022	1	Tissue	X	X	X			
9/17/2009	11:05	LPR4-ACCT-Ind023	1	Tissue	X	X	X			
9/18/2009	11:15	LPR5-ACCT-Ind024	1	Tissue	X	X	X			
Total Number of Containers			5 of 35	Purchase Order / Statement of Work # BRL09_01LPR						

1) Released by: [Signature]
 Company: Alpha
 Date/Time: 7/6/10 1640
 Rec'd by: UPS
 Company:
 Date/Time:

2) Released by: [Signature]
 Company:
 Date/Time: 7/6/10
 Rec'd by: [Signature]
 Company: BRL
 Date/Time: 900

3) Released by: [Signature]
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

NOTES
 Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).



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To be completed by Laboratory upon sample receipt:

Date of receipt: <u>7/8/10</u>	Laboratory W.O. #: <u>1028015</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>900</u>
Cooler temperature: <u>58/5.9C</u>	Received by: <u>Katie Jahanmir</u>

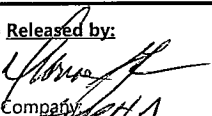
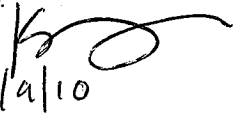
CHAIN-OF-CUSTODY/TEST REQUEST FORM

1028033

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs COC reference # LPR-BRL-CATF-A
 Attn: Misty Kennard-Mayer Shipping Date: 07/08/2010
 Shipper: UPS Airbill Number: 1219EBE 014298 3881
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
9/12/2009	9:35	LPR8-WSFT-Ind009	1	Tissue	X	X	X			
9/12/2009	11:16	LPR8-WSFT-Ind013	1	Tissue	X	X	X			
9/15/2009	8:34	LPR5-WSFT-Ind019	1	Tissue	X	X	X			
9/18/2009	11:57	LPR5-WSFT-Ind020	1	Tissue	X	X	X			
9/18/2009	14:10	LPR4-WSFT-Ind023	1	Tissue	X	X	X			
8/18/2009	8:15	LPR5-IPFT-Ind001	1	Tissue	X	X	X			
8/25/2009	7:17	LPR6-IPFT-Ind003	1	Tissue	X	X	X			
8/26/2009	8:29	LPR6-IPFT-Ind004	1	Tissue	X	X	X			
8/26/2009	10:18	LPR7-IPFT-Ind005	1	Tissue	X	X	X			
8/27/2009	9:34	LPR7-IPFT-Ind006	1	Tissue	X	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # BRL09_01LPR						

1) Released by:  Company: <u>Windward Environmental LLC</u> Date/Time: <u>7/8/10 1240</u> Rec'd by: <u>UPS</u> Company: Date/Time:	2) Released by: Company: Date/Time: Rec'd by:  <u>7/9/10</u> Company: <u>BRL</u> Date/Time: <u>910</u>	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>7/9/10</u>	Laboratory W.O. #: <u>1028033</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>900</u>
Cooler temperature: <u>5.0C</u>	Received by: <u>Katie Jahanmir</u>

2

of

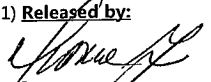

2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs
 Attn: Misty Kennard-Mayer
 Shipper: UPS
 Form filled out by: Jennifer Parker/Dianne Janak

COC reference: # LPR- BRL-CATF-B
 Shipping Date: 07/08/2010
 Airbill Number: 121908E01 4298 3881
 Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)		
9/9/2009	9:15	LPR8-IPFT-Ind008	1	Tissue	X	X	X		
9/9/2009	9:15	LPR8-IPFT-Ind009	1	Tissue	X	X	X		
9/10/2009	13:02	LPR8-IPFT-Ind010	1	Tissue	X	X	X		
9/10/2009	13:02	LPR8-IPFT-Ind011	1	Tissue	X	X	X		
9/10/2009	13:02	LPR8-IPFT-Ind012	1	Tissue	X	X	X		
9/10/2009	13:02	LPR8-IPFT-Ind013	1	Tissue	X	X	X		
8/11/2009	11:08	LPR3-ACFT-Ind001	1	Tissue	X	X	X		
8/11/2009	11:30	LPR3-ACFT-Ind002	1	Tissue	X	X	X		
8/13/2009	10:26	LPR3-ACFT-Ind003	1	Tissue	X	X	X		
8/14/2009	9:04	LPR3-ACFT-Ind005	1	Tissue	X	X	X		
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # BRL09_01LPR					
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>7/8/10 1240</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by:  Company: <u>BRL</u> Date/Time: <u>7/9/10 900</u>		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>7/9/10</u>	Laboratory W.O. #: <u>1028033</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>900</u>
Cooler temperature: <u>5.0C</u>	Received by: <u>Katie Tahanmir</u>

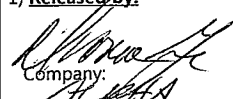
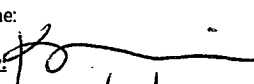


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 Fax: (206) 217-9343

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Brooks Rand Labs**
 Attn: **Misty Kennard-Mayer**
 Shipper: **UPS**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference: **# LPR- BRL-CATF-C**
 Shipping Date: **07/08/2010**
 Airbill Number: **1219ETBE01 4298 3881**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)		
8/19/2009	10:51	LPR5-ACFT-Ind006	1	Tissue	X	X	X		
8/25/2009	8:25	LPR6-ACFT-Ind008	1	Tissue	X	X	X		
8/25/2009	8:25	LPR6-ACFT-Ind009	1	Tissue	X	X	X		
8/26/2009	7:55	LPR6-ACFT-Ind010	1	Tissue	X	X	X		
8/27/2009	7:27	LPR6-ACFT-Ind013	1	Tissue	X	X	X		
8/27/2009	9:48	LPR7-ACFT-Ind014	1	Tissue	X	X	X		
8/29/2009	11:11	LPR6-ACFT-Ind016	1	Tissue	X	X	X		
8/29/2009	12:06	LPR7-ACFT-Ind017	1	Tissue	X	X	X		
9/2/2009	14:13	LPR2-ACFT-Ind018	1	Tissue	X	X	X		
9/8/2009	8:04	LPR8-ACFT-Ind019	1	Tissue	X	X	X		
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # BRL09_01LPR					
1) Released by:  Company: Date/Time: 7/8/10 12:40 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by:  7/11/10 BRL 100 Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			



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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 7/11/10	Laboratory W.O. #: 1028033
Condition upon receipt: good	Time of receipt: 900
Cooler temperature: 5.0C	Received by: Katie Jahanmuri

4

of

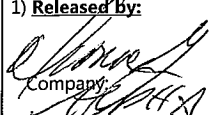

4

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs
 Attn: Misty Kennard-Mayer
 Shipper: UPS
 Form filled out by: Jennifer Parker/Dianne Janak
 COC reference: # LPR- BRL-CATF-D
 Shipping Date: 07/08/2010
 Airbill Number: 1Z19E7BE 01 4298 3881
 Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)		
9/8/2009	8:44	LPR8-ACFT-Ind020	1	Tissue	X	X	X		
9/8/2009	8:44	LPR8-ACFT-Ind021	1	Tissue	X	X	X		
9/10/2009	13:02	LPR8-ACFT-Ind022	1	Tissue	X	X	X		
9/17/2009	11:05	LPR4-ACFT-Ind023	1	Tissue	X	X	X		
9/18/2009	11:15	LPR5-ACFT-Ind024	1	Tissue	X	X	X		
Total Number of Containers			5 of 35	Purchase Order / Statement of Work # BRL09_01LPR					

1) Released by:  Company: <u>Alpha</u> Date/Time: <u>7/8/10 1240</u> Rec'd by: <u>UPS</u> Company: Date/Time:	2) Released by: Company: Date/Time: Rec'd by:  Company: <u>BRL</u> Date/Time: <u>7/9/10 900</u>	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>7/9/10</u>	Laboratory W.O. #: <u>10 28033</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>900</u>
Cooler temperature: <u>5.0C</u>	Received by: <u>Katie Jahanni</u>

1029028

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31 (Task 16.1)
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Brooks Rand Labs	COC reference	# LPR-BRL-RB6
Attn:	Misty Kennard-Mayer	Shipping Date:	07/13/2010
Shipper:	UPS	Airbill Number:	1219ET8E 014261 8696
Form filled out by:	Jennifer Parker/Ellen Collins	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
07/13/10	8:15	LPR-071310-RB	3	Water	X	X	X			Comments / Instructions [lar tag number(s)]
Total Number of Containers			3	Purchase Order / Statement of Work # BRL09_01LPR						
1) Released by: Company: Date/Time: 7/13/10 1030 <u>Rec'd by:</u> UPS Company: Date/Time:		2) Released by: Company: Date/Time: <u>Rec'd by:</u> Company: BRC Date/Time: 7.14.10 930		3) Released by: Company: Date/Time: <u>Rec'd by:</u> Company: Date/Time:		NOTES				



Windward
environmental LLC

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Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 7.14.10	Laboratory W.O. #: 1024028
Condition upon receipt: gww	Time of receipt: 0930
Cooler temperature: 2.1	Received by: [Signature]

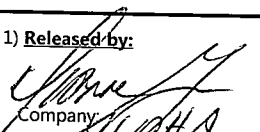
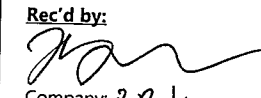
CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Brooks Rand Labs**
 Attn: **Misty Kennard-Mayer**
 Shipper: **UPS**
 Form filled out by: **Jennifer Parker/Dianne Janak**

COC reference # **LPR-BRL-PERF-A**
 Shipping Date: **07/13/2010**
 Airbill Number: **1219E78E 014108 3408**
 Turnaround requested: **Standard**

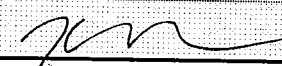
Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)		
8/11/2009	9:56	LPR3-MAFT-Comp02	1	Tissue	X	X	X		
8/11/2009	10:08	LPR3-MAFT-Comp03	1	Tissue	X	X	X		
8/12/2009	9:24	LPR3-MAFT-Comp04	1	Tissue	X	X	X		
8/13/2009	10:00	LPR3-MAFT-Comp05	1	Tissue	X	X	X		
8/13/2009	11:52	LPR3-MAFT-Comp07	1	Tissue	X	X	X		
8/13/2009	11:52	LPR3-MAFT-Comp08	1	Tissue	X	X	X		
8/14/2009	8:44	LPR3-MAFT-Comp13	1	Tissue	X	X	X		
8/25/2009	7:30	LPR6-MAFT-Comp24	1	Tissue	X	X	X		
8/25/2009	9:54	LPR6-MAFT-Ind122	1	Tissue	X	X	X		
9/1/2009	13:10	LPR1-MAFT-Comp01	1	Tissue	X	X	X		
Total Number of Containers			10 of 19	Purchase Order / Statement of Work # BRL09_01LPR					

1) Released by:  Company: Alpha Date/Time: 7/13/10 1600 Rec'd by: UPS Company: Date/Time:	2) Released by: Company: Date/Time: Rec'd by:  Company: BRL Date/Time: 7-14-10 0930	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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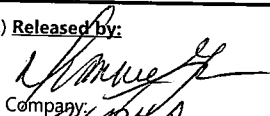
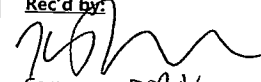
To be completed by Laboratory upon sample receipt:

Date of receipt: 7-14-10	Laboratory W.O. #: 1029028
Condition upon receipt: gwd	Time of receipt: 0930
Cooler temperature: 1-1	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC


To: Brooks Rand Labs
 Attn: Misty Kennard-Mayer
 Shipper: UPS
 Form filled out by: Jennifer Parker/Dianne Janak
 COC reference: # LPR- BRL-PERF-B
 Shipping Date: 07/13/2010
 Airbill Number: 1219ETBE 014108 3408
 Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)		
9/10/2009	8:38	LPR8-MAFT-Comp26	1	Tissue	X	X	X		Comments / Instructions [lar tag number(s)]
9/10/2009	9:30	LPR8-MAFT-Comp31	1	Tissue	X	X	X		
9/12/2009	9:35	LPR8-MAFT-Comp27	1	Tissue	X	X	X		
9/18/2009	10:35	LPR5-MAFT-Comp20	1	Tissue	X	X	X		
9/18/2009	10:35	LPR5-MAFT-Comp21	1	Tissue	X	X	X		
9/18/2009	11:57	LPR5-MAFT-Comp22	1	Tissue	X	X	X		
9/18/2009	13:50	LPR4-MAFT-Comp16	1	Tissue	X	X	X		
9/18/2009	14:10	LPR4-MAFT-Comp17	1	Tissue	X	X	X		
9/2/2009	15:46	LPR1-MAFT-Ind145	1	Tissue	X	X	X		
Total Number of Containers			9 of 19	Purchase Order / Statement of Work # BRL09_01LPR					
1) Released by:  Company: <u>Windward Environmental LLC</u> Date/Time: <u>7/13/10 1600</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by:  Company: <u>Brooks Rand Labs</u> Date/Time: <u>7-14-10 / 0930</u>		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			



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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>7.14.10</u>	Laboratory W.O. #: <u>1029023</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>0930</u>
Cooler temperature: <u>1.1</u>	Received by: 

2 of 2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

1029029

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs COC reference: # LPR- BRL-PERWB-B
 Attn: Misty Kennard-Mayer Shipping Date: 07/13/2010
 Shipper: UPS Airbill Number: 121908E 014108 3408
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)		
9/1/2009	12:59	LPR1-MAWB-Ind138	1	Tissue	X	X	X		Comments / Instructions (for tag number(s))
9/4/2009	11:25	LPR2-MAWB-Ind158	1	Tissue	X	X	X		
9/7/2009	13:15	LPR8-MAWB-Comp32	1	Tissue	X	X	X		
9/12/2009	9:35	LPR8-MAWB-Comp28	1	Tissue	X	X	X		
9/12/2009	9:35	LPR8-MAWB-Comp29	1	Tissue	X	X	X		
9/15/2009	9:23	LPR4-MAWB-Comp14	1	Tissue	X	X	X		
9/17/2009	9:52	LPR5-MAWB-Comp19	1	Tissue	X	X	X		
9/17/2009	10:04	LPR5-MAWB-Comp18	1	Tissue	X	X	X		
9/18/2009	11:57	LPR5-MAWB-Comp23	1	Tissue	X	X	X		
9/18/2009	13:19	LPR4-MAWB-Comp15	1	Tissue	X	X	X		
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # BRL09_01LPR					

1) Released by: [Signature]
 Company: Alpha
 Date/Time: 7/13/10 1600
 Rec'd by: UPS
 Company: _____
 Date/Time: _____

2) Released by: _____
 Company: _____
 Date/Time: _____
 Rec'd by: [Signature]
 Company: BRL
 Date/Time: 7.14.10 0930

3) Released by: _____
 Company: _____
 Date/Time: _____
 Rec'd by: _____
 Company: _____
 Date/Time: _____

NOTES
 Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).



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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>good 7.14.10</u>	Laboratory W.O. #: <u>1029029</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>0930</u>
Cooler temperature: <u>1.1</u>	Received by: <u>[Signature]</u>

1

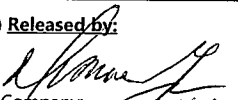

of

2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

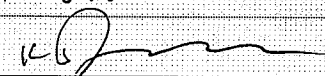
To: Brooks Rand Labs COC reference # LPR-BRL-PERWB-A
 Attn: Misty Kennard-Mayer Shipping Date: 07/13/2010
 Shipper: UPS Airbill Number: 121978E014108 3408
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
9/2/2009	15:46	LPR1-MACT-Ind145	1	Tissue	X	X	X			
8/11/2009	7:21	LPR3-MAWB-Comp06	1	Tissue	X	X	X			
8/13/2009	11:52	LPR3-MAWB-Comp09	1	Tissue	X	X	X			
8/13/2009	11:52	LPR3-MAWB-Comp10	1	Tissue	X	X	X			
8/13/2009	11:52	LPR3-MAWB-Comp11	1	Tissue	X	X	X			
8/13/2009	11:52	LPR3-MAWB-Comp12	1	Tissue	X	X	X			
8/13/2009	11:52	LPR3-MAWB-Comp30	1	Tissue	X	X	X			
8/25/2009	11:09	LPR7-MAWB-Ind123	1	Tissue	X	X	X			
8/26/2009	10:37	LPR7-MAWB-Comp25	1	Tissue	X	X	X			
8/27/2009	6:56	LPR6-MAWB-Ind128	1	Tissue	X	X	X			
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # BRL09_01LPR						
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>7/13/10 1600</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by:  Company: <u>BRL</u> Date/Time: <u>7.14.10 0930</u>		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

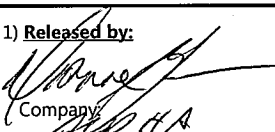

Date of receipt: <u>7.14.10</u>	Laboratory W.O. #: <u>6029029</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>0930</u>
Cooler temperature: <u>1.1</u>	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

1013030 #2

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs COC reference # LPR-BRL-EELF-A
 Attn: Misty Kennard-Mayer Shipping Date: 07/20/2010
 Shipper: UPS Airbill Number: 1219678E 01 4168 0852
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)		
8/11/2009	8:00	LPR3-ARFT-Comp20	1	Tissue	X	X	X		
8/11/2009	8:50	LPR3-ARFT-Comp06	1	Tissue	X	X	X		
8/11/2009	9:13	LPR3-ARFT-Ind005	1	Tissue	X	X	X		
8/11/2009	11:08	LPR3-ARFT-Comp05	1	Tissue	X	X	X		
8/12/2009	9:00	LPR3-ARFT-Ind010	1	Tissue	X	X	X		
8/12/2009	12:28	LPR3-ARFT-Ind014	1	Tissue	X	X	X		
8/18/2009	8:05	LPR5-ARFT-Comp09	1	Tissue	X	X	X		
8/18/2009	8:15	LPR5-ARFT-Ind021	1	Tissue	X	X	X		
8/18/2009	8:42	LPR4-ARFT-Ind022	1	Tissue	X	X	X		
8/18/2009	12:30	LPR4-ARFT-Ind026	1	Tissue	X	X	X		
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # BRL09_01LPR					
1) Released by:  Company: <u>Windward Environmental LLC</u> Date/Time: <u>7/20/10 1615</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by:  Company: <u>7/21/10</u> Date/Time: <u>BRL 900</u>		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			



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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

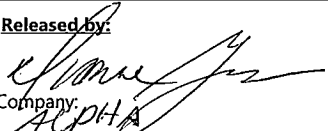

Date of receipt: <u>7/21/10</u>	Laboratory W.O. #: <u>1030013</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>900</u>
Cooler temperature: <u>-0.7C</u>	Received by: <u>Katie Jahanmiri</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs
 Attn: Misty Kennard-Mayer
 Shipper: UPS
 Form filled out by: Jennifer Parker/Dianne Janak

COC reference: # LPR-BRL-EELF-B
 Shipping Date: 07/20/2010
 Airbill Number: 1219E 18 014168 0852
 Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
8/19/2009	10:43	LPR5-ARFT-Comp12	1	Tissue	X	X	X			
8/19/2009	10:51	LPR5-ARFT-Ind030	1	Tissue	X	X	X			
8/19/2009	12:44	LPR4-ARFT-Comp07	1	Tissue	X	X	X			
8/19/2009	12:44	LPR4-ARFT-Ind034	1	Tissue	X	X	X			
8/20/2009	11:59	LPR5-ARFT-Comp10	1	Tissue	X	X	X			
8/20/2009	12:25	LPR5-ARFT-Ind040	1	Tissue	X	X	X			
8/20/2009	13:39	LPR4-ARFT-Comp08	1	Tissue	X	X	X			
8/20/2009	14:42	LPR4-ARFT-Ind044	1	Tissue	X	X	X			
8/21/2009	11:56	LPR5-ARFT-Ind049	1	Tissue	X	X	X			
8/21/2009	12:09	LPR5-ARFT-Ind048	1	Tissue	X	X	X			
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # BRL09_01LPR						
1) Released by:  Company: <u>ALPHA</u> Date/Time: <u>7/20/10 1615</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by:  Company: <u>BRL</u> Date/Time: <u>7/21/10 900</u>		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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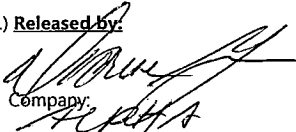

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>7/21/10</u>	Laboratory W.O. #: <u>1030013</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>900</u>
Cooler temperature: <u>-0.7C</u>	Received by: <u>Katie Jahanmir</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs COC reference: # LPR-BRL-EELF-C
 Attn: Misty Kennard-Mayer Shipping Date: 07/20/2010
 Shipper: UPS Airbill Number: 1219E18E014168 0852
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)		
8/25/2009	9:25	LPR6-ARFT-Ind065	1	Tissue	X	X	X		
8/27/2009	11:08	LPR7-ARFT-Ind071	1	Tissue	X	X	X		
8/29/2009	8:27	LPR6-ARFT-Ind073	1	Tissue	X	X	X		
9/1/2009	12:55	LPR1-ARFT-Comp01	1	Tissue	X	X	X		
9/2/2009	15:29	LPR1-ARFT-Comp02	1	Tissue	X	X	X		
9/5/2009	15:15	LPR5-ARFT-Ind086	1	Tissue	X	X	X		
9/8/2009	12:32	LPR8-ARFT-Comp17	1	Tissue	X	X	X		
9/8/2009	13:15	LPR8-ARFT-Comp21	1	Tissue	X	X	X		
9/8/2009	13:15	LPR8-ARFT-Comp22	1	Tissue	X	X	X		
9/9/2009	8:25	LPR8-ARFT-Comp14	1	Tissue	X	X	X		
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # BRL09_01LPR					
1) Released by:  Company: <u>Windward Environmental LLC</u> Date/Time: <u>7/20/10 1615</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by:  Company: <u>BRL</u> Date/Time: <u>7/21/10 900</u>		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			



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To be completed by Laboratory upon sample receipt:

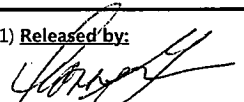

Date of receipt: <u>7/21/10</u>	Laboratory W.O. #: <u>1013030</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>900</u>
Cooler temperature: <u>-0.7C</u>	Received by: <u>Katie Jahannir</u>

Date of receipt: -0.7C 7/21/10	Laboratory W.O. #: 1013030
Condition upon receipt: good	Time of receipt: 900
Cooler temperature: -0.7C	Received by: Katic Tahanmir

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	<u>Passaic RI/FS Tissue</u>
Project Number:	<u>09.58.02.31 (Task 16.1)</u>
Contact Name:	<u>Jennifer Parker</u>
Sampled By:	<u>Windward Environmental LLC</u>

To:	<u>Brooks Rand Labs</u>	COC reference	<u># LPR-BRL-RB7</u>
Attn:	<u>Misty Kennard-Mayer</u>	Shipping Date:	<u>07/19/2010</u>
Shipper:	<u>UPS</u>	Airbill Number:	<u>1Z19E7BE 014125 2412</u>
Form filled out by:	<u>Jennifer Parker/Ellen Collins</u>	Turnaround requested:	<u>Standard</u>

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
7/19/2010	12:30	LPR-071910-RB	3	Water	X	X	X			
Total Number of Containers			3	Purchase Order / Statement of Work # BRL09_01LPR						
1) Released by:  Company: ALPHA Date/Time: 7/19/10 1550 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by:  Company: BRL Date/Time: 7/20/10 900		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES				

The logo for Windward environmental LLC features the word "Windward" in a large, serif font, with "environmental" in a smaller, sans-serif font below it, and "LLC" in a large, bold, sans-serif font to the right. A thick, black, curved line sweeps across the text from the bottom left towards the top right.

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Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 7/20/10	Laboratory W.O. #: 1013030
Condition upon receipt: good	Time of receipt: 900
Cooler temperature: 4.0	Received by: Katie Tahan

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Brooks Rand Labs COC ref erence # LPR-BRL-EELWB-A
 Attn: Misty Kennard-Mayer Shipping Date: 07/20/2010
 Shipper: UPS Airbill Number: 1219E78E 01 4349 0465
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)		
9/2/2009	14:59	LPR2-ARCT-Comp04	1	Tissue	X	X	X		
9/5/2009	12:03	LPR1-ARCT-Ind085	1	Tissue	X	X	X		
8/11/2009	7:46	LPR3-ARWB-Ind001	1	Tissue	X	X	X		
8/11/2009	11:30	LPR3-ARWB-Ind009	1	Tissue	X	X	X		
8/12/2009	11:36	LPR3-ARWB-Ind012	1	Tissue	X	X	X		
8/18/2009	11:28	LPR4-ARWB-Ind024	1	Tissue	X	X	X		
8/18/2009	12:39	LPR4-ARWB-Ind025	1	Tissue	X	X	X		
8/20/2009	12:30	LPR5-ARWB-Ind039	1	Tissue	X	X	X		
8/20/2009	14:42	LPR4-ARWB-Ind043	1	Tissue	X	X	X		
8/21/2009	11:50	LPR5-ARWB-Comp11	1	Tissue	X	X	X		
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # BRL09_01LPR					
1) Released by: Company: <u>Windward Environmental LLC</u> Date/Time: <u>7/20/10 1625</u> Rec'd by: <u>UPS</u> Company: <u>UPS</u> Date/Time:		2) Released by: Company: <u>BRL</u> Date/Time: <u>7/21/10 900</u> Rec'd by:		3) Released by: Company: <u>Brooks Rand Labs</u> Date/Time: <u>7/21/10 900</u> Rec'd by:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			



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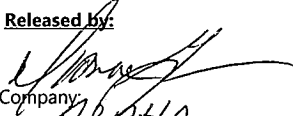
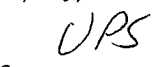
To be completed by Laboratory upon sample receipt:

Date of receipt: <u>7/21/10</u>	Laboratory W.O. #: <u>1013030</u>
Condition upon receipt: <u>good</u>	Time of receipt: <u>900</u>
Cooler temperature: <u>-2.1C</u>	Received by: <u>Katie Tahanian</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Brooks Rand Labs** COC reference: **# LPR-BRL-EELWB-B**
 Attn: **Misty Kennard-Mayer** Shipping Date: **07/20/2010**
 Shipper: **UPS** Airbill Number: **1219E18E 014349 0465**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					Methylmercury (1630)	Total Mercury (1631)	Inorganic Arsenic (1632)			
8/22/2009	8:17	LPR4-ARWB-Ind060	1	Tissue	X	X	X			
8/22/2009	9:22	LPR5-ARWB-Ind062	1	Tissue	X	X	X			
8/27/2009	8:08	LPR7-ARWB-Ind070	1	Tissue	X	X	X			
8/27/2009	8:47	LPR6-ARWB-Ind069	1	Tissue	X	X	X			
8/29/2009	10:49	LPR6-ARWB-Ind074	1	Tissue	X	X	X			
9/3/2009	12:37	LPR1-ARWB-Comp03	1	Tissue	X	X	X			
9/7/2009	14:00	LPR8-ARWB-Comp16	1	Tissue	X	X	X			
9/8/2009	10:30	LPR8-ARWB-Comp15	1	Tissue	X	X	X			
9/8/2009	12:32	LPR8-ARWB-Comp18	1	Tissue	X	X	X			
9/9/2009	7:49	LPR8-ARWB-Comp13	1	Tissue	X	X	X			
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # BRL09_01LPR						
1) Released by:  Company: Alpha Date/Time: 7/20/10 1625 Rec'd by:  Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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To be completed by Laboratory upon sample receipt:

Date of receipt: 7/21/10	Laboratory W.O. #: 1013030
Condition upon receipt: good	Time of receipt: 100
Cooler temperature: -2.1 C	Received by: Katie Jahanmir

Columbia Analytical Services

1

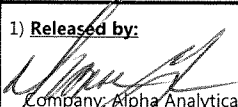

of

3

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Columbia Analytical # LPR-CAS-MH-1A
 Attn: Lynda Huckestein
 Shipper: UPS
 Form filled out by: Jennifer Parker / Diane Janak
 Shipping Date: 03/23/2010
 Airbill Number: 1219E18E 01 4299 1836
 Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
8/26/2009	07:12	LPR6-CSMH-Comp37	1	Tissue	X	X	X	X	X	
9/15/2009	09:58	LPR6-CSMH-Comp38	1	Tissue	X	X	X	X	X	
8/20/2009	13:03	LPR4-CSMH-Comp31	1	Tissue	X	X	X	X	X	
8/27/2009	07:13	LPR6-CSMH-Comp41	1	Tissue	X	X	X	X	X	
8/25/2009	07:26	LPR6-CSMH-Comp42	1	Tissue	X	X	X	X	X	
8/27/2009	07:52	LPR6-CSMH-Comp44	1	Tissue	X	X	X	X	X	
8/25/2009	09:24	LPR7-CSMH-Comp45	1	Tissue	X	X	X	X	X	
8/25/2009	09:24	LPR7-CSMH-Comp46	1	Tissue	X	X	X	X	X	
8/25/2009	09:35	LPR7-CSMH-Comp49	1	Tissue	X	X	X	X	X	
8/26/2009	08:58	LPR7-CSMH-Comp53	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: Alpha Analytical Date/Time: 3/23/10 1640 Rec'd by: UPS		2) Released by: Company: Date/Time: Rec'd by:  Company: CAS Date/Time: 3/24/10 1030		3) Released by: Company: Date/Time: Rec'd by:		4) Released by: Company: Date/Time: Rec'd by:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.		



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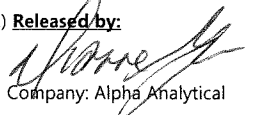

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>3/23/10</u> <u>3/24/10</u>	Laboratory W.O. #: <u>K1002762</u>
Condition upon receipt: <u>Intact</u>	Time of receipt: <u>1030</u>
Cooler temperature: <u>-13.7</u>	Received by: <u>John Jones</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue** To: **Columbia Analytical** # LPR-CAS-MH-1B
 Project Number: **09.58.02.31** Attn: **Lynda Huckestein** Shipping Date: **03/23/2010**
 Contact Name: **Jennifer Parker** Shipper: **UPS** Airbill Number: **1Z19E18E0142991836**
 Sampled By: **Windward Environmental LLC** Form filled out by: **Jennifer Parker / Diane Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (Jar tag number(s))
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP, 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/10/2009	13:02	LPR8-CSMH-Comp61	1	Tissue	X	X	X	X	X	
8/25/2009	09:39	LPR7-CSMH-Comp48	1	Tissue	X	X	X	X	X	
9/9/2009	09:54	LPR8-CSMH-Comp54	1	Tissue	X	X	X	X	X	
8/25/2009	09:35	LPR7-CSMH-Comp50	1	Tissue	X	X	X	X	X	
9/9/2009	09:54	LPR8-CSMH-Comp55	1	Tissue	X	X	X	X	X	
9/8/2009	08:44	LPR8-CSMH-Comp56	1	Tissue	X	X	X	X	X	
9/9/2009	08:56	LPR8-CSMH-Comp57	1	Tissue	X	X	X	X	X	
9/1/2009	12:33	LPR1-CSMH-Comp01	1	Tissue	X	X	X	X	X	
9/2/2009	15:02	LPR1-CSMH-Comp02	1	Tissue	X	X	X	X	X	
9/2/2009	15:46	LPR1-CSMH-Comp03	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # CAS09_01LPR						

1) Released by:  Company: Alpha Analytical Date/Time: 3/23/10 1640 Rec'd by: UPS	2) Released by: Company: Date/Time: Rec'd by:  Company: CAS Date/Time: 3/24/10 1030	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.
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 Tel: (206) 378-1364
 Fax: (206) 217-9343

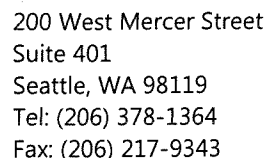
To be completed by Laboratory upon sample receipt:

Date of receipt: 3/24/10	Laboratory W.O. #: K1002762
Condition upon receipt: Intact	Time of receipt: 1030
Cooler temperature: -13.7	Received by: John Jones

Date of receipt: 3/24/10	Laboratory W.O. #: K1002762
Condition upon receipt: intact	Time of receipt: 1030
Cooler temperature: -13.7	Received by: [Signature]

To:	Columbia Analytical	# LPR-CAS-RB2
Attn:	Lynda Huckestein	Shipping Date: 04/12/2010
Shipper:	UPS	Airbill Number: 1219E18ED141439408
Form filled out by:	Ellen Collins/Diane Janak	Turnaround requested: Standard

To be completed by Laboratory upon sample receipt:



Date of receipt: 4-13-10	Laboratory W.O. #:
Condition upon receipt: good	Time of receipt: 1000
Cooler temperature: -0.1	Received by: Brad Tobin

1 of 3

CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1003357

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Columbia Analytical**
 Attn: **Lynda Huckestein**
 Shipper: _____
 Form filled out by: **Jennifer Parker**

LPR-CAS-CT-A
 Shipping Date: **4/7/10**
 Airbill Number: **1219E70E 014323 1575**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP, 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
8/20/2009	13:03	LPR4-CSCT-Comp31	1	Tissue	X	X	X	X	X	
9/1/2009	12:33	LPR1-CSCT-Comp01	1	Tissue	X	X	X	X	X	
9/2/2009	15:02	LPR1-CSCT-Comp02	1	Tissue	X	X	X	X	X	
9/2/2009	15:46	LPR1-CSCT-Comp03	1	Tissue	X	X	X	X	X	
9/2/2009	15:46	LPR1-CSCT-Comp04	1	Tissue	X	X	X	X	X	
9/1/2009	14:04	LPR1-CSCT-Comp06	1	Tissue	X	X	X	X	X	
9/2/2009	16:33	LPR1-CSCT-Comp07	1	Tissue	X	X	X	X	X	
9/2/2009	12:49	LPR1-CSCT-Comp11	1	Tissue	X	X	X	X	X	
8/18/2009	11:41	LPR4-CSCT-Comp30	1	Tissue	X	X	X	X	X	
9/1/2009	12:49	LPR1-CSCT-Comp13	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 24	Purchase Order / Statement of Work # CAS09_01LPR						

1) Released by: Company: Windward Environmental LLC Date/Time: 4/7/10 1535 Rec'd by: Company: _____ Date/Time: _____	2) Released by: Company: _____ Date/Time: _____ Rec'd by: <i>John Jones</i> Company: CAS Date/Time: 4/8/10 1000	3) Released by: Company: _____ Date/Time: _____ Rec'd by: Company: _____ Date/Time: _____	4) Released by: Company: _____ Date/Time: _____ Rec'd by: Company: _____ Date/Time: _____	5) Released by: Company: _____ Date/Time: _____ Rec'd by: Company: _____ Date/Time: _____
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To be completed by Laboratory upon sample receipt:

Date of receipt: 4/8/10	Laboratory W.O. #: _____
Condition upon receipt: Intact	Time of receipt: 1000
Cooler temperature: 0.2 / Frozen	Received by: <i>John Jones</i>



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of

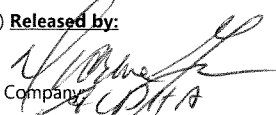

3

CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1003357

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Columbia Analytical** # LPR-CAS-CT-B
 Attn: **Lynda Huckestein** Shipping Date: **4/7/10**
 Shipper: **Jennifer Parker** Airbill Number: **1219E18E0143231575**
 Form filled out by: **Jennifer Parker** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/1/2009	12:09	LPR2-CSCT-Comp14	1	Tissue	X	X	X	X	X	
9/1/2009	11:03	LPR2-CSCT-Comp17	1	Tissue	X	X	X	X	X	
9/1/2009	10:02	LPR2-CSCT-Comp15	1	Tissue	X	X	X	X	X	
9/3/2009	12:35	LPR2-CSCT-Comp18	1	Tissue	X	X	X	X	X	
9/1/2009	11:32	LPR2-CSCT-Comp19	1	Tissue	X	X	X	X	X	
9/1/2009	11:32	LPR2-CSCT-Comp20	1	Tissue	X	X	X	X	X	
8/11/2009	10:08	LPR3-CSCT-Comp24	1	Tissue	X	X	X	X	X	
8/18/2009	07:43	LPR5-CSCT-Comp34	1	Tissue	X	X	X	X	X	
8/12/2009	10:29	LPR3-CSCT-Comp26	1	Tissue	X	X	X	X	X	
8/18/2009	10:35	LPR4-CSCT-Comp32	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 24	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: CAS Date/Time: 4/7/10 1535 Rec'd by:  Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: <i>John Jones</i> Company: CAS Date/Time: 4/8/10 1000		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		



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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 4/8/10	Laboratory W.O. #:
Condition upon receipt: Intact	Time of receipt: 1000
Cooler temperature: 0.2/Frozen	Received by: John Jones

3

of

3

CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1003357

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Columbia Analytical** # LPR-CAS-CT-C
 Attn: **Lynda Huckestein** Shipping Date: **4/7/10**
 Shipper: **Jennifer Parker** Airbill Number: **1219E18E 01 4323 1575**
 Form filled out by: **Jennifer Parker** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP/6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
8/18/2009	12:01	LPR4-CSCT-Comp33	1	Tissue	X	X	X	X	X	
8/11/2009	07:21	LPR3-CSCT-Comp27	1	Tissue	X	X	X	X	X	
8/13/2009	11:52	LPR3-CSCT-Comp28	1	Tissue	X	X	X	X	X	
8/21/2009	13:46	LPR5-CSCT-Comp35	1	Tissue	X	X	X	X	X	
Total Number of Containers			4 of 24	Purchase Order / Statement of Work # CAS09_01LPR						

1) Released by: <i>[Signature]</i> Company: <i>[Signature]</i> Date/Time: <i>4/7/10 1535</i> Rec'd by: <i>UPS</i> Company: Date/Time:	2) Released by: Company: Date/Time: Rec'd by: <i>John Towers</i> Company: <i>CAS</i> Date/Time: <i>4/8/10 1000</i>	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:
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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <i>4/8/10</i>	Laboratory W.O. #:
Condition upon receipt: <i>Intact</i>	Time of receipt: <i>1000</i>
Cooler temperature: <i>0.2/Frozen</i>	Received by: <i>John Towers</i>

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of

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CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1603359

Project/Client Name: Passaic RI/FS Tissue

Project Number: 09.58.02.31

Contact Name: Jennifer Parker

Sampled By: Windward Environmental LLC

To: Columbia Analytical # LPR-CAS-MH-2A

Attn: Lynda Huckestein Shipping Date: 4/7/10

Shipper: Jennifer Parker Airbill Number: 1Z19E1BE0142838529

Form filled out by: Jennifer Parker Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP, 60108)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/8/2009	09:50	LPR8-CSMH-Comp58	1	Tissue	X	X	X	X	X	
9/1/2009	14:04	LPR1-CSMH-Comp06	1	Tissue	X	X	X	X	X	
9/2/2009	16:33	LPR1-CSMH-Comp07	1	Tissue	X	X	X	X	X	
9/2/2009	12:49	LPR1-CSMH-Comp11	1	Tissue	X	X	X	X	X	
8/20/2009	13:03	LPR4-CSMH-Comp30	1	Tissue	X	X	X	X	X	WW Note: Correct collection date/time for LPR4-CSMH-Comp30 is 8/18/2009 at 11:41.
9/1/2009	12:49	LPR1-CSMH-Comp13	1	Tissue	X	X	X	X	X	
9/1/2009	12:09	LPR2-CSMH-Comp14	1	Tissue	X	X	X	X	X	
9/1/2009	11:03	LPR2-CSMH-Comp17	1	Tissue	X	X	X	X	X	
9/1/2009	10:02	LPR2-CSMH-Comp15	1	Tissue	X	X	X	X	X	
9/3/2009	12:35	LPR2-CSMH-Comp18	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 22	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by: <i>[Signature]</i> Company: <i>Ward</i> Date/Time: <i>4/7/10 1425</i> Rec'd by: <i>UPS</i> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: <i>John Jones</i> Company: <i>CAS</i> Date/Time: <i>4/8/10 1000</i>		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		



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Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <i>4/8/10</i>	Laboratory W.O. #:
Condition upon receipt: <i>Intact</i>	Time of receipt: <i>1000</i>
Cooler temperature: <i>0.7 / Frozen</i>	Received by: <i>John Jones</i>

2

of

2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1003359

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Columbia Analytical # LPR-CAS-MH-2Brev
 Attn: Lynda Huckestein Shipping Date: _____
 Shipper: _____ Airbill Number: _____
 Form filled out by: Jennifer Parker Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP-6010B)	Metals (ICPMS, 6020)	Metals (Se, 7742)	
9/1/2009	11:32	LPR2-CSMH-Comp19	1	Tissue	X	X	X	X	X	
9/1/2009	11:32	LPR2-CSMH-Comp20	1	Tissue	X	X	X	X	X	
8/11/2009	10:08	LPR3-CSMH-Comp24	1	Tissue	X	X	X	X	X	
8/18/2009	07:43	LPR5-CSMH-Comp34	1	Tissue	X	X	X	X	X	Alpha ID L1003087-36 on bag
8/12/2009	10:29	LPR3-CSMH-Comp26	1	Tissue	X	X	X	X	X	
8/18/2009	10:35	LPR4-CSMH-Comp32	1	Tissue	X	X	X	X	X	
8/18/2009	12:01	LPR4-CSMH-Comp33	1	Tissue	X	X	X	X	X	
8/11/2009	07:21	LPR3-CSMH-Comp27	1	Tissue	X	X	X	X	X	
8/13/2009	11:52	LPR3-CSMH-Comp28	1	Tissue	X	X	X	X	X	
8/21/2009	13:46	LPR5-CSMH-Comp35	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 22	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:		2) Released by:		3) Released by:		4) Released by:		5) Released by:		
Company:		Company:		Company:		Company:		Company:		
Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		
Rec'd by:		Rec'd by: <i>John Jones</i>		Rec'd by:		Rec'd by:		Rec'd by:		
Company:		Company: <i>CAS</i>		Company:		Company:		Company:		
Date/Time:		Date/Time: <i>4/8/10 1000</i>		Date/Time:		Date/Time:		Date/Time:		

To be completed by Laboratory upon sample receipt:



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt: <i>4/8/10</i>	Laboratory W.O. #:
Condition upon receipt: <i>Intact</i>	Time of receipt: <i>1000</i>
Cooler temperature: <i>0.7/Frozen</i>	Received by: <i>John Jones</i>

1

of

1

CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1003611

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Columbia Analytical**
 Attn: **Lynda Huckestein**
 Shipper: **UPS**
 Form filled out by: **Jennifer Parker/Dianne Janak**

LPR-CAS-HT-A
 Shipping Date: **4/14/2010**
 Airbill Number: **1219018E 01 41242067**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP, 60108)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/1/2009	13:10	LPR1-CSHT-Comp05	1	Tissue	X	X	X	X	X	
9/1/2009	11:03	LPR2-CSHT-Comp63	1	Tissue	X	X	X	X	X	
9/3/2009	11:10	LPR1-CSHT-Comp09	1	Tissue	X	X	X	X	X	
8/11/2009	07:21	LPR3-CSHT-Comp64	1	Tissue	X	X	X	X	X	
9/2/2009	14:13	LPR2-CSHT-Comp21	1	Tissue	X	X	X	X	X	
8/25/2009	09:24	LPRX-CSHT-Comp65	1	Tissue	X	X	X	X	X	
9/8/2009	07:48	LPR8-CSHT-Comp66	1	Tissue	X	X	X	X	X	
Total Number of Containers			7	Purchase Order / Statement of Work # CAS09_01LPR						

1) Released by: Company: Alpha Date/Time: 4/14/10 1425 Rec'd by: UPS Company: Date/Time:	2) Released by: Company: Date/Time: Rec'd by: Company: Alpha Date/Time: 4/15/10 0940	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.
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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 4/15/10	Laboratory W.O. #: K1003611
Condition upon receipt: Good	Time of receipt: 4/15/10 0940
Cooler temperature: 10.61 Frozen	Received by:

CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1003612

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Columbia Analytical** # LPR-CAS-MT-A
 Attn: **Lynda Huckestein** Shipping Date: **4/14/2010**
 Shipper: **UPS** Airbill Number: **1219E78E0141242067**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP, 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
8/28/2009	8:50	LPR7-CSMT-Comp52	1	Tissue	X	X	X	X	X	
9/1/2009	14:04	LPR1-CSMT-Comp08	1	Tissue	X	X	X	X	X	
9/2/2009	12:08	LPR1-CSMT-Comp10	1	Tissue	X	X	X	X	X	
9/3/2009	12:00	LPR1-CSMT-Comp12	1	Tissue	X	X	X	X	X	
9/2/2009	12:26	LPR2-CSMT-Comp16	1	Tissue	X	X	X	X	X	
9/17/2009	11:27	LPR6-CSMT-Comp39	1	Tissue	X	X	X	X	X	
9/1/2009	11:46	LPR2-CSMT-Comp22	1	Tissue	X	X	X	X	X	
9/1/2009	11:07	LPR2-CSMT-Comp23	1	Tissue	X	X	X	X	X	
8/27/2009	06:50	LPR6-CSMT-Comp40	1	Tissue	X	X	X	X	X	
8/12/2009	09:24	LPR3-CSMT-Comp25	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # CAS09_01LPR						

1) Released by: Company: UPS Date/Time: 4/14/10 1425 Rec'd by: Company: Date/Time:	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time: 4/15/10 0940	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.
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To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:



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2

of

3

CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1003612

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Columbia Analytical** # LPR-CAS-MT-B
 Attn: **Lynda Huckestein** Shipping Date: **4/14/2010**
 Shipper: **UPS** Airbill Number: **1219E1BE 014124 2067**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP, 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
8/27/2009	07:17	LPR6-CSMT-Comp43	1	Tissue	X	X	X	X	X	
8/15/2009	7:00	LPR3-CSMT-Comp29	1	Tissue	X	X	X	X	X	
8/20/2009	12:20	LPR5-CSMT-Comp36	1	Tissue	X	X	X	X	X	
8/26/2009	11:38	LPR7-CSMT-Comp47	1	Tissue	X	X	X	X	X	
8/27/2009	08:55	LPR7-CSMT-Comp51	1	Tissue	X	X	X	X	X	
9/9/2009	08:56	LPR8-CSMT-Comp59	1	Tissue	X	X	X	X	X	
9/9/2009	08:47	LPR8-CSMT-Comp60	1	Tissue	X	X	X	X	X	
9/10/2009	13:02	LPR8-CSMT-Comp62	1	Tissue	X	X	X	X	X	
9/1/2009	13:10	LPR1-CSMT-Comp05	1	Tissue	X	X	X	X	X	
9/3/2009	11:10	LPR1-CSMT-Comp09	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by: Company: Alpha Date/Time: 4/14/10 1425 Rec'd by: Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time: 4/15/10 0940		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.		

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11

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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

K1005940

To:	<u>Columbia Analytical</u>	COC reference	<u># LPR-CAS-RB3</u>
Attn:	<u>Lynda Huckestein</u>	Shipping Date:	<u>06/08/2010</u>
Shipper:	<u>UPS</u>	Airbill Number:	<u>1Z19E18E0142659660</u>
Form filled out by:	<u>Jennifer Parker/Ellen Collins</u>	Turnaround requested:	<u>Standard</u>

To be completed by Laboratory upon sample receipt:

Date of receipt: 6/9/10	Laboratory W.O. #:
Condition upon receipt: good	Time of receipt: 1030
Cooler temperature: 1.7	Received by: [Signature]

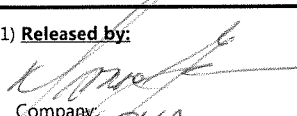


200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Columbia Analytical COC reference: # LPR-CAS-PI-A
 Attn: Lynda Huckestein Shipping Date: 06/09/2010
 Shipper: UPS Airbill Number: 1Z19E18E014134 9425
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP-6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
8/25/2009	9:54	LPR6-ELFT-Ind001	1	Tissue	X	X	X	X	X	
9/19/2009	9:35	LPR5-MSFT-Comp01	1	Tissue	X	X	X	X	X	
9/8/2009	10:09	LPR8-MSFT-Ind002	1	Tissue	X	X	X	X	X	
9/18/2009	10:35	LPR5-MSFT-Ind009	1	Tissue	X	X	X	X	X	
9/18/2009	13:50	LPR4-MDFT-Comp01	1	Tissue	X	X	X	X	X	
9/18/2009	10:35	LPR5-MDFT-Comp02	1	Tissue	X	X	X	X	X	
9/10/2009	8:40	LPR8-MDFT-Comp03	1	Tissue	X	X	X	X	X	
8/25/2009	9:54	LPR6-ELCT-Ind001	1	Tissue	X	X	X	X	X	
9/19/2009	9:35	LPR5-MSCT-Comp01	1	Tissue	X	X	X	X	X	
9/8/2009	10:09	LPR8-MSCT-Ind002	1	Tissue	X	X	X	X	X	
Total Number of Containers			10	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>6/9/10 1515</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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 Seattle, WA 98119
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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>6-10-10</u>	Laboratory W.O. #: <u>K1006037</u>
Condition upon receipt: <u>Good</u>	Time of receipt: <u>1000</u>
Cooler temperature: <u>-08°C</u>	Received by: <u>[Signature] JF CAS</u>

2

of

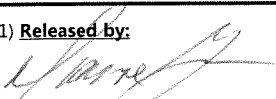
2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical** COC reference: **# LPR-CAS-PI-B**
 Attn: **Ellen Collins** Shipping Date: **06/09/2010**
 Shipper: **UPS** Airbill Number: **1219E18E 014134 9425**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP-6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/18/2009	10:35	LPR5-MSCT-Ind009	1	Tissue	X	X	X	X	X	
9/18/2009	13:50	LPR4-MDCT-Comp01	1	Tissue	X	X	X	X	X	
9/18/2009	10:35	LPR5-MDCT-Comp02	1	Tissue	X	X	X	X	X	
9/10/2009	8:40	LPR8-MDCT-Comp03	1	Tissue	X	X	X	X	X	
Total Number of Containers			4	Purchase Order / Statement of Work # CAS09_01LPR						

1) Released by:  Company: Alpha Date/Time: 6/9/10 1515 Rec'd by: UPS Company: Date/Time:	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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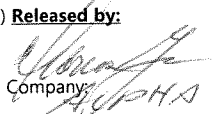
To be completed by Laboratory upon sample receipt:

Date of receipt: 6-10-10	Laboratory W.O. #: K1006037
Condition upon receipt: Good	Time of receipt: 1000
Cooler temperature: -0.8°C	Received by: JY JF CAS

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Thai Do, Angelita Rodriquez**

To: **Columbia Analytical** # LPR-CAS-ET
 Attn: **Lynda Huckestein** Shipping Date: **06/09/2010**
 Shipper: **UPS** Airbill Number: **1219E18E 014134 9425**
 Form filled out by: **Jennifer Parker/Ellen Collins** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (jar tag number(s))
					Lipids(Bligh-Dyer)					
5/25/2010	17:40	LPR2-FHET-Comp01	1	Tissue	X					6.0 g prior to homogenization
5/25/2010	17:50	LPR2-FHET-Comp02	1	Tissue	X					6.0 g prior to homogenization
5/25/2010	18:00	LPR2-FHET-Comp03	1	Tissue	X					6.0 g prior to homogenization
5/25/2010	18:10	LPR2-FHET-Comp04	1	Tissue	X					6.0 g prior to homogenization
5/25/2010	18:20	LPR2-FHET-Comp05	1	Tissue	X					6.0 g prior to homogenization
5/25/2010	18:30	LPR2-FHET-Comp06	1	Tissue	X					6.0 g prior to homogenization
5/25/2010	18:40	LPR2-FHET-Comp07	1	Tissue	X					6.0 g prior to homogenization
5/25/2010	18:50	LPR2-FHET-Comp08	1	Tissue	X					6.0 g prior to homogenization
5/25/2010	19:00	LPRX-FHET-Comp09	1	Tissue	X					5.5 g -prior to homogenization.
5/25/2010	19:10	LPR2-FHET-Comp10	1	Tissue	X					6.0 g prior to homogenization
Total Number of Containers			10 of 10	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: Alpha Date/Time: 6/9/10 1515 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		Egg composites were created in the field facility by Windward staff. Composites were homogenized at Alpha Analytical, therefore, samples are released by Alpha Analytical.		

To be completed by Laboratory upon sample receipt:

Date of receipt: 6-10-10	Laboratory W.O. #: K1006040
Condition upon receipt: Good	Time of receipt: 1000
Cooler temperature: -0.8°C	Received by: AKJF CAS



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1 of 1

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Columbia Analytical	COC reference	# LPR-CAS-RB4
Attn:	Lynda Huckestein	Shipping Date:	06/15/2010
Shipper:	UPS	Airbill Number:	1Z19E78E0142264069
Form filled out by:	Jennifer Parker/Ellen Collins	Turnaround requested:	Standard



Windward
environmental LLC

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Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

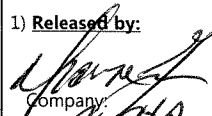
To be completed by Laboratory upon sample receipt:	
Date of receipt: 6-16-10	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 1010
Cooler temperature: -0.6°C #284	Received by: [Signature] CAS

CHAIN-OF-CUSTODY/TEST REQUEST FORM

K100 6240

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Columbia Analytical** COC reference: **# LPR-CAS-WB-A**
 Attn: **Lynda Huckestein** Shipping Date: **06/16/2010** *4173*
 Shipper: **UPS** Airbill Number: **1219E78E 01** *413 5552*
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP, 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
8/11/2009	9:25	LPR3-CCWB-Ind002	1	Tissue	X	X	X	X	X	
8/15/2009	8:50	LPR3-CCWB-Ind005	1	Tissue	X	X	X	X	X	
8/19/2009	10:03	LPR5-CCWB-Ind011	1	Tissue	X	X	X	X	X	
8/25/2009	7:30	LPR6-CCWB-Ind021	1	Tissue	X	X	X	X	X	
8/25/2009	8:43	LPR6-CCWB-Ind028	1	Tissue	X	X	X	X	X	
8/25/2009	11:33	LPR7-CCWB-Ind042	1	Tissue	X	X	X	X	X	
8/27/2009	9:01	LPR7-CCWB-Ind069	1	Tissue	X	X	X	X	X	
9/12/2009	7:58	LPR8-CCWB-Ind139	1	Tissue	X	X	X	X	X	
9/12/2009	10:57	LPR8-CCWB-Ind147	1	Tissue	X	X	X	X	X	
9/18/2009	10:35	LPR5-CCWB-Ind160	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 18	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: Alpha Date/Time: 6/16/10 1455 Rec'd by: Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:



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 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt: 6-17-10	Laboratory W.O. #:
Condition upon receipt: Good	Time of receipt: 940
Cooler temperature: -5.1°C <i>#269</i>	Received by: Jel CAS

2

of

2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

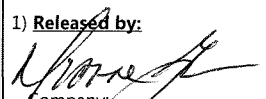
K1006240

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Alpha Analytical**
 Attn: **Ellen Collins**
 Shipper: **UPS**
 Form filled out by: **Jennifer Parker/Dianne Janak**

COC reference: **# LPR-CAS-WB-B**
 Shipping Date: **06/16/2010**
 Airbill Number: **1219E18E 01 4173 5552**
 Turnaround requested: **Standard**

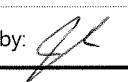
Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP, 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/18/2009	13:50	LPR4-CCWB-Ind175	1	Tissue	X	X	X	X	X	
9/19/2009	12:10	LPR4-CCWB-Ind186	1	Tissue	X	X	X	X	X	
8/12/2009	9:27	LPR3-ANWB-Ind001	1	Tissue	X	X	X	X	X	
8/28/2009	8:05	LPR6-ANWB-Ind004	1	Tissue	X	X	X	X	X	
9/16/2009	10:08	LPR4-ANWB-Ind007	1	Tissue	X	X	X	X	X	
8/28/2009	7:24	LPR6-ANWB-Ind003	1	Tissue	X	X	X	X	X	
8/29/2009	11:01	LPR6-ANWB-Ind005	1	Tissue	X	X	X	X	X	
8/29/2009	11:44	LPR7-ANWB-Ind006	1	Tissue	X	X	X	X	X	
Total Number of Containers			8 of 18	Purchase Order / Statement of Work # CAS09_01LPR						

1) Released by:  Company: Windward Environmental LLC Date/Time: 6/16/10 1455 Rec'd by: Company: Date/Time:	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 6-17-10	Laboratory W.O. #:
Condition upon receipt: Good	Time of receipt: 940
Cooler temperature: -5.1°C	Received by:  CAS

#269

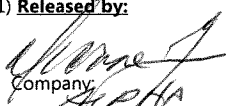
CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1006286

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Columbia Analytical**
 Attn: **Lynda Huckestein**
 Shipper: **UPS**
 Form filled out by: **Jennifer Parker/Dianne Janak**

COC reference **# LPR-CAS-CF-A**
 Shipping Date: **06/16/2010**
 Airbill Number: **1Z19E18E 014264 628**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP-60108)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
8/11/2009	9:25	LPR3-CCFT-Ind001	1	Tissue	X	X	X	X	X	
8/15/2009	8:50	LPR3-CCFT-Ind004	1	Tissue	X	X	X	X	X	
8/25/2009	9:54	LPR6-CCFT-Ind032	1	Tissue	X	X	X	X	X	
8/27/2009	9:01	LPR7-CCFT-Ind068	1	Tissue	X	X	X	X	X	
8/28/2009	9:32	LPR7-CCFT-Ind092	1	Tissue	X	X	X	X	X	
8/29/2009	8:10	LPR6-CCFT-Ind104	1	Tissue	X	X	X	X	X	
9/8/2009	7:48	LPR8-CCFT-Ind121	1	Tissue	X	X	X	X	X	
9/9/2009	9:15	LPR8-CCFT-Ind131	1	Tissue	X	X	X	X	X	
9/17/2009	10:49	LPR4-CCFT-Ind155	1	Tissue	X	X	X	X	X	
9/17/2009	11:05	LPR4-CCFT-Ind156	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 12	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: Alpha Date/Time: 6/16/10 1445 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



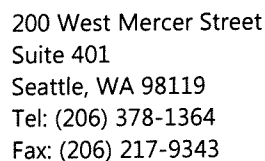
200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 6-17-10	Laboratory W.O. #:
Condition upon receipt: Good	Time of receipt: 940
Cooler temperature: -3.4°C	Received by: CAS

COC reference: # LPR-CAS-CF-B
Shipping Date: 06/16/2010
Airbill Number: 1219E78E01 4264 6281
Turnaround requested: Standard

To be completed by Laboratory upon sample receipt:

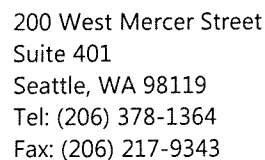


Date of receipt: 6-17-10	Laboratory W.O. #:
Condition upon receipt: good	Time of receipt: 940
Cooler temperature: -3.4°C	Received by: JK CAS

K100674

To:	<u>Columbia Analytical</u>	COC reference	<u># LPR-CAS-RB5</u>
Attn:	<u>Lynda Huckestein</u>	Shipping Date:	<u>06/29/2010</u>
Shipper:	<u>UPS</u>	Airbill Number:	<u>1Z9E18E 01 4316 9894</u>
Form filled out by:	<u>Jennifer Parker/Ellen Collins</u>	Turnaround requested:	<u>Standard</u>

To be completed by Laboratory upon sample receipt:



Date of receipt: 6/30/10	Laboratory W.O. #:
Condition upon receipt: Good	Time of receipt: 0950
Cooler temperature: -0.1	Received by: [Signature]

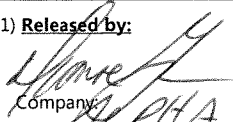
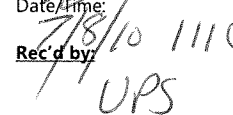
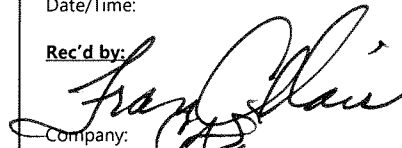
CHAIN-OF-CUSTODY/TEST REQUEST FORM

K100 7100

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Columbia Analytical**
 Attn: **Lynda Huckestein**
 Shipper: **UPS**
 Form filled out by: **Jennifer Parker/Dianne Janak**

COC reference: **# LPR-CAS-CATF-A**
 Shipping Date: **07/08/2010**
 Airbill Number: **1219E1BE 01 4235 2053**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP, 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/12/2009	9:35	LPR8-WSFT-Ind009	1	Tissue	X	X	X	X	X	
9/12/2009	11:16	LPR8-WSFT-Ind013	1	Tissue	X	X	X	X	X	
9/15/2009	8:34	LPR5-WSFT-Ind019	1	Tissue	X	X	X	X	X	
9/18/2009	11:57	LPR5-WSFT-Ind020	1	Tissue	X	X	X	X	X	
9/18/2009	14:10	LPR4-WSFT-Ind023	1	Tissue	X	X	X	X	X	
8/18/2009	8:15	LPR5-IPFT-Ind001	1	Tissue	X	X	X	X	X	
8/25/2009	7:17	LPR6-IPFT-Ind003	1	Tissue	X	X	X	X	X	
8/26/2009	8:29	LPR6-IPFT-Ind004	1	Tissue	X	X	X	X	X	
8/26/2009	10:18	LPR7-IPFT-Ind005	1	Tissue	X	X	X	X	X	
8/27/2009	9:34	LPR7-IPFT-Ind006	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: Alpha Date/Time: 7/8/10 1110 Rec'd by:  Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by:  Company: Date/Time: 7/9/10 1010		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

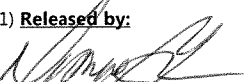

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1007100

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Columbia Analytical COC reference: # LPR-CAS-CATF-B
 Attn: Lynda Huckestein Shipping Date: 07/08/2010
 Shipper: UPS Airbill Number: 1Z19E18E 014235 2053
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP, 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/9/2009	9:15	LPR8-IPFT-Ind008	1	Tissue	X	X	X	X	X	Comments / Instructions [Jar tag number(s)]
9/9/2009	9:15	LPR8-IPFT-Ind009	1	Tissue	X	X	X	X	X	
9/10/2009	13:02	LPR8-IPFT-Ind010	1	Tissue	X	X	X	X	X	
9/10/2009	13:02	LPR8-IPFT-Ind011	1	Tissue	X	X	X	X	X	
9/10/2009	13:02	LPR8-IPFT-Ind012	1	Tissue	X	X	X	X	X	
9/10/2009	13:02	LPR8-IPFT-Ind013	1	Tissue	X	X	X	X	X	
8/11/2009	11:08	LPR3-ACFT-Ind001	1	Tissue	X	X	X	X	X	
8/11/2009	11:30	LPR3-ACFT-Ind002	1	Tissue	X	X	X	X	X	
8/13/2009	10:26	LPR3-ACFT-Ind003	1	Tissue	X	X	X	X	X	
8/14/2009	9:04	LPR3-ACFT-Ind005	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>8/10 11:10</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by:  Company: <u>CAS</u> Date/Time: <u>8/9/10 10:10</u>		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

CHAIN-OF-CUSTODY/TEST REQUEST FORM

1007102

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Columbia Analytical COC reference: # LPR-CAS-CATF-C
 Attn: Lynda Huckestein Shipping Date: 07/08/2010
 Shipper: UPS Airbill Number: 121978E014235 2053
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP-6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
8/19/2009	10:51	LPR5-ACFT-Ind006	1	Tissue	X	X	X	X	X	
8/25/2009	8:25	LPR6-ACFT-Ind008	1	Tissue	X	X	X	X	X	
8/25/2009	8:25	LPR6-ACFT-Ind009	1	Tissue	X	X	X	X	X	
8/26/2009	7:55	LPR6-ACFT-Ind010	1	Tissue	X	X	X	X	X	
8/27/2009	7:27	LPR6-ACFT-Ind013	1	Tissue	X	X	X	X	X	
8/27/2009	9:48	LPR7-ACFT-Ind014	1	Tissue	X	X	X	X	X	
8/29/2009	11:11	LPR6-ACFT-Ind016	1	Tissue	X	X	X	X	X	
8/29/2009	12:06	LPR7-ACFT-Ind017	1	Tissue	X	X	X	X	X	
9/2/2009	14:13	LPR2-ACFT-Ind018	1	Tissue	X	X	X	X	X	
9/8/2009	8:04	LPR8-ACFT-Ind019	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by: Company: <u>UPS</u> Date/Time: <u>7/8/10 1110</u> Rec'd by: Company: <u>UPS</u> Date/Time: <u>7/8/10 1110</u>		2) Released by: Company: _____ Date/Time: _____ Rec'd by: Company: _____ Date/Time: <u>7/9/10 1010</u>		3) Released by: Company: _____ Date/Time: _____ Rec'd by: _____ Company: _____ Date/Time: _____		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:



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 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

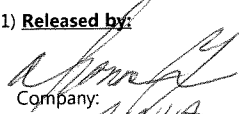
CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1007102

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Columbia Analytical
 Attn: Lynda Huckestein
 Shipper: UPS
 Form filled out by: Jennifer Parker/Dianne Janak

COC reference: # LPR-CAS-CATF-D
 Shipping Date: 07/08/2010
 Airbill Number: 1219E18E 014235 2053
 Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP-6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/8/2009	8:44	LPR8-ACFT-Ind020	1	Tissue	X	X	X	X	X	
9/8/2009	8:44	LPR8-ACFT-Ind021	1	Tissue	X	X	X	X	X	
9/10/2009	13:02	LPR8-ACFT-Ind022	1	Tissue	X	X	X	X	X	
9/17/2009	11:05	LPR4-ACFT-Ind023	1	Tissue	X	X	X	X	X	
9/18/2009	11:15	LPR5-ACFT-Ind024	1	Tissue	X	X	X	X	X	
Total Number of Containers			5 of 35	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: <u>Alpha Analytical</u> Date/Time: <u>7/8/10 1110</u> Rec'd by: <u>UPS</u> Company: <u> </u> Date/Time: <u> </u>		2) Released by: Company: <u> </u> Date/Time: <u> </u> Rec'd by: <u>Jana Smith</u> Company: <u>CAS</u> Date/Time: <u>7/9/10 1070</u>		3) Released by: Company: <u> </u> Date/Time: <u> </u> Rec'd by: <u> </u> Company: <u> </u> Date/Time: <u> </u>		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:



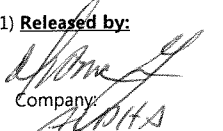


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CHAIN-OF-CUSTODY/TEST REQUEST FORM

161007103

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Columbia Analytical** COC reference: **# LPR-CAS-CATC-A**
 Attn: **Lynda Huckestein** Shipping Date: **07/08/2010**
 Shipper: **UPS** Airbill Number: **1219EBE 014368 1660**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP-6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/12/2009	9:35	LPR8-WSCT-Ind009	1	Tissue	X	X	X	X	X	
9/12/2009	11:16	LPR8-WSCT-Ind013	1	Tissue	X	X	X	X	X	
9/15/2009	8:34	LPR5-WSCT-Ind019	1	Tissue	X	X	X	X	X	
9/18/2009	11:57	LPR5-WSCT-Ind020	1	Tissue	X	X	X	X	X	
9/18/2009	14:10	LPR4-WSCT-Ind023	1	Tissue	X	X	X	X	X	
8/18/2009	8:15	LPR5-IPCT-Ind001	1	Tissue	X	X	X	X	X	
8/25/2009	7:17	LPR6-IPCT-Ind003	1	Tissue	X	X	X	X	X	
8/26/2009	8:29	LPR6-IPCT-Ind004	1	Tissue	X	X	X	X	X	
8/26/2009	10:18	LPR7-IPCT-Ind005	1	Tissue	X	X	X	X	X	
8/27/2009	9:34	LPR7-IPCT-Ind006	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: UPS Date/Time: 7/8/10 1120 Rec'd by:  Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by:  Company: CAS Date/Time: 7/9/10 1900		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:



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2

of

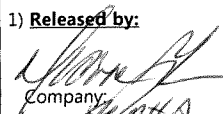
2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

10007103

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Columbia Analytical COC reference: # LPR-CAS-CATC-B
 Attn: Lynda Huckestein Shipping Date: 07/08/2010
 Shipper: UPS Airbill Number: 1719ETBE 01 4368 1660
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP, 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/9/2009	9:15	LPR8-IPCT-Ind008	1	Tissue	X	X	X	X	X	
9/9/2009	9:15	LPR8-IPCT-Ind009	1	Tissue	X	X	X	X	X	
9/10/2009	13:02	LPR8-IPCT-Ind010	1	Tissue	X	X	X	X	X	
9/10/2009	13:02	LPR8-IPCT-Ind011	1	Tissue	X	X	X	X	X	
9/10/2009	13:02	LPR8-IPCT-Ind012	1	Tissue	X	X	X	X	X	
9/10/2009	13:02	LPR8-IPCT-Ind013	1	Tissue	X	X	X	X	X	
8/11/2009	11:08	LPR3-ACCT-Ind001	1	Tissue	X	X	X	X	X	
8/11/2009	11:30	LPR3-ACCT-Ind002	1	Tissue	X	X	X	X	X	
8/13/2009	10:26	LPR3-ACCT-Ind003	1	Tissue	X	X	X	X	X	
8/14/2009	9:04	LPR3-ACCT-Ind005	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>7/8/10 1120</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:



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 Seattle, WA 98119
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 Fax: (206) 217-9343

CHAIN-OF-CUSTODY/TEST REQUEST FORM

161007105

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Columbia Analytical COC reference: # LPR-CAS-CATC-C
 Attn: Lynda Huckestein Shipping Date: 07/08/2010
 Shipper: UPS Airbill Number: 1219E18E014368 1660
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP-6010B)	Metals (ICP/MS, 6020)	Metals (Se. 7742)	
8/19/2009	10:51	LPR5-ACCT-Ind006	1	Tissue	X	X	X	X	X	Comments / Instructions [lar tag number(s)]
8/25/2009	8:25	LPR6-ACCT-Ind008	1	Tissue	X	X	X	X	X	
8/25/2009	8:25	LPR6-ACCT-Ind009	1	Tissue	X	X	X	X	X	
8/26/2009	7:55	LPR6-ACCT-Ind010	1	Tissue	X	X	X	X	X	
8/27/2009	7:27	LPR6-ACCT-Ind013	1	Tissue	X	X	X	X	X	
8/27/2009	9:48	LPR7-ACCT-Ind014	1	Tissue	X	X	X	X	X	
8/29/2009	11:11	LPR6-ACCT-Ind016	1	Tissue	X	X	X	X	X	
8/29/2009	12:06	LPR7-ACCT-Ind017	1	Tissue	X	X	X	X	X	
9/2/2009	14:13	LPR2-ACCT-Ind018	1	Tissue	X	X	X	X	X	
9/8/2009	8:04	LPR8-ACCT-Ind019	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by: Company: <u>Alpha</u> Date/Time: <u>7/8/10 1120</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: <u>CAS</u> Date/Time: <u>7/9/10 1010</u>		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

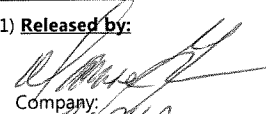
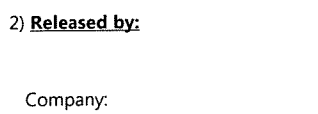
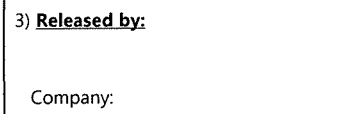
CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1007105

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Columbia Analytical COC reference: # LPR-CAS-CATC-D
 Attn: Lynda Huckestein Shipping Date: 07/08/2010
 Shipper: UPS Airbill Number: 1219ETBE01 4368 1060
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP-6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/8/2009	8:44	LPR8-ACCT-Ind020	1	Tissue	X	X	X	X	X	
9/8/2009	8:44	LPR8-ACCT-Ind021	1	Tissue	X	X	X	X	X	
9/10/2009	13:02	LPR8-ACCT-Ind022	1	Tissue	X	X	X	X	X	
9/17/2009	11:05	LPR4-ACCT-Ind023	1	Tissue	X	X	X	X	X	
9/18/2009	11:15	LPR5-ACCT-Ind024	1	Tissue	X	X	X	X	X	
Total Number of Containers			5 of 35	Purchase Order / Statement of Work # CAS09_01LPR						

1) Released by:  Company: <u>CHS</u> Date/Time: <u>7/8/10 1120</u> Rec'd by: <u>UPS</u> Company: <u>UPS</u> Date/Time: <u>7/9/10 1010</u>	2) Released by:  Company: <u>CHS</u> Date/Time: <u>7/9/10 1010</u> Rec'd by: <u>CHS</u> Company: <u>CHS</u> Date/Time: <u>7/9/10 1010</u>	3) Released by:  Company: <u>CHS</u> Date/Time: <u>7/9/10 1010</u> Rec'd by: <u>CHS</u> Company: <u>CHS</u> Date/Time: <u>7/9/10 1010</u>	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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To be completed by Laboratory upon sample receipt:



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 Suite 401
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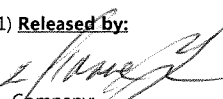

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1007273

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Columbia Analytical COC reference: # LPR-CAS-PERF-A
 Attn: Lynda Huckestein Shipping Date: 07/13/2010
 Shipper: UPS Airbill Number: 1219ETBE 014139 7187
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP-6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
8/11/2009	9:56	LPR3-MAFT-Comp02	1	Tissue	X	X	X	X	X	
8/11/2009	10:08	LPR3-MAFT-Comp03	1	Tissue	X	X	X	X	X	
8/12/2009	9:24	LPR3-MAFT-Comp04	1	Tissue	X	X	X	X	X	
8/13/2009	10:00	LPR3-MAFT-Comp05	1	Tissue	X	X	X	X	X	
8/13/2009	11:52	LPR3-MAFT-Comp07	1	Tissue	X	X	X	X	X	
8/13/2009	11:52	LPR3-MAFT-Comp08	1	Tissue	X	X	X	X	X	
8/14/2009	8:44	LPR3-MAFT-Comp13	1	Tissue	X	X	X	X	X	
8/25/2009	7:30	LPR6-MAFT-Comp24	1	Tissue	X	X	X	X	X	
8/25/2009	9:54	LPR6-MAFT-Ind122	1	Tissue	X	X	X	X	X	
9/1/2009	13:10	LPR1-MAFT-Comp01	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 19	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>7/13/10 1430</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by:  Company: <u>CAS</u> Date/Time: <u>7/14/10 1030</u>		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>7-14-10</u>	Laboratory W.O. #: <u>K1007273</u>
Condition upon receipt: <u>Good</u>	Time of receipt: <u>1030</u>
Cooler temperature: <u>-0.7</u>	Received by: <u>J/P CAS</u>

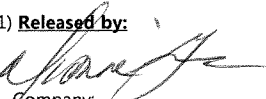

CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1007273


Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Columbia Analytical** COC reference: **# LPR-CAS-PERF-B**
 Attn: **Lynda Huckestein** Shipping Date: **07/13/2010**
 Shipper: **UPS** Airbill Number: **121908E 0141397187**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP, 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/10/2009	8:38	LPR8-MAFT-Comp26	1	Tissue	X	X	X	X	X	
9/10/2009	9:30	LPR8-MAFT-Comp31	1	Tissue	X	X	X	X	X	
9/12/2009	9:35	LPR8-MAFT-Comp27	1	Tissue	X	X	X	X	X	
9/18/2009	10:35	LPR5-MAFT-Comp20	1	Tissue	X	X	X	X	X	
9/18/2009	10:35	LPR5-MAFT-Comp21	1	Tissue	X	X	X	X	X	
9/18/2009	11:57	LPR5-MAFT-Comp22	1	Tissue	X	X	X	X	X	
9/18/2009	13:50	LPR4-MAFT-Comp16	1	Tissue	X	X	X	X	X	
9/18/2009	14:10	LPR4-MAFT-Comp17	1	Tissue	X	X	X	X	X	
9/2/2009	15:46	LPR1-MAFT-Ind145	1	Tissue	X	X	X	X	X	
Total Number of Containers			9 of 19	Purchase Order / Statement of Work # CAS09_01LPR						

1) Released by:  Company: ALPHA Date/Time: 7/13/10 1430 Rec'd by: UPS Company: Date/Time:	2) Released by: Company: Date/Time: Rec'd by:  Company: CAS Date/Time: 7/14/10 1030	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
---	--	--	--

To be completed by Laboratory upon sample receipt:

Date of receipt: 7-14-10	Laboratory W.O. #: K1007273
Condition upon receipt: Good	Time of receipt: 1030
Cooler temperature: -0.7	Received by:  CAS



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

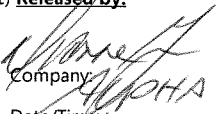
Turnaround requested: Standard

Date of receipt: 7-14-10	Laboratory W.O. #: K1007273
Condition upon receipt: Good	Time of receipt: 1030
Cooler temperature: -0.7	Received by: JZ CAS

CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1007274

Project/Client Name: Passaic RI/FS Tissue To: Columbia Analytical COC reference: # LPR-CAS-PERWB-A
 Project Number: Task 16.1 (09.58.02.31) Attn: Lynda Huckestein Shipping Date: 07/13/2010
 Contact Name: Jennifer Parker Shipper: UPS Airbill Number: 1219E18E014139 7182
 Sampled By: Windward Environmental LLC Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP, 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/2/2009	15:46	LPR1-MACT-Ind145	1	Tissue	X	X	X	X	X	
8/11/2009	7:21	LPR3-MAWB-Comp06	1	Tissue	X	X	X	X	X	
8/13/2009	11:52	LPR3-MAWB-Comp09	1	Tissue	X	X	X	X	X	
8/13/2009	11:52	LPR3-MAWB-Comp10	1	Tissue	X	X	X	X	X	
8/13/2009	11:52	LPR3-MAWB-Comp11	1	Tissue	X	X	X	X	X	
8/13/2009	11:52	LPR3-MAWB-Comp12	1	Tissue	X	X	X	X	X	
8/13/2009	11:52	LPR3-MAWB-Comp30	1	Tissue	X	X	X	X	X	
8/25/2009	11:09	LPR7-MAWB-Ind123	1	Tissue	X	X	X	X	X	
8/26/2009	10:37	LPR7-MAWB-Comp25	1	Tissue	X	X	X	X	X	
8/27/2009	6:56	LPR6-MAWB-Ind128	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 19	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>9/13/10 1430</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt: <u>7-14-10</u>	Laboratory W.O. #: <u>K1007274</u>
Condition upon receipt: <u>Good</u>	Time of receipt: <u>1030</u>
Cooler temperature: <u>-0.7</u>	Received by: <u>J. Z. CAS</u>

2

of

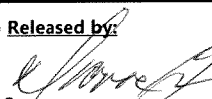
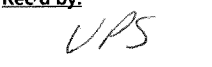
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CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1007274

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**


To: **Columbia Analytical** COC reference: **# LPR-CAS-PERWB-B**
 Attn: **Lynda Huckestein** Shipping Date: **07/13/2010**
 Shipper: **UPS** Airbill Number: **1219E18E 014139 7187**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP-6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/1/2009	12:59	LPR1-MAWB-Ind138	1	Tissue	X	X	X	X	X	
9/4/2009	11:25	LPR2-MAWB-Ind158	1	Tissue	X	X	X	X	X	
9/7/2009	13:15	LPR8-MAWB-Comp32	1	Tissue	X	X	X	X	X	
9/12/2009	9:35	LPR8-MAWB-Comp28	1	Tissue	X	X	X	X	X	
9/12/2009	9:35	LPR8-MAWB-Comp29	1	Tissue	X	X	X	X	X	
9/15/2009	9:23	LPR4-MAWB-Comp14	1	Tissue	X	X	X	X	X	
9/17/2009	9:52	LPR5-MAWB-Comp19	1	Tissue	X	X	X	X	X	
9/17/2009	10:04	LPR5-MAWB-Comp18	1	Tissue	X	X	X	X	X	
9/18/2009	11:57	LPR5-MAWB-Comp23	1	Tissue	X	X	X	X	X	
9/18/2009	13:19	LPR4-MAWB-Comp15	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: Alpha Date/Time: 7/13/10 1430 Rec'd by:  Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 7-14-10	Laboratory W.O. #: K1007274
Condition upon receipt: Good	Time of receipt: 1030
Cooler temperature: -0.7	Received by:  CAS

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Columbia Analytical** COC reference **# LPR-CAS-EELF-A**
 Attn: **Lynda Huckestein** Shipping Date: **07/20/2010**
 Shipper: **UPS** Airbill Number: **1219E78E 014148 1077**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP-6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
8/11/2009	8:00	LPR3-ARFT-Comp20	1	Tissue	X	X	X	X	X	
8/11/2009	8:50	LPR3-ARFT-Comp06	1	Tissue	X	X	X	X	X	
8/11/2009	9:13	LPR3-ARFT-Ind005	1	Tissue	X	X	X	X	X	
8/11/2009	11:08	LPR3-ARFT-Comp05	1	Tissue	X	X	X	X	X	
8/12/2009	9:00	LPR3-ARFT-Ind010	1	Tissue	X	X	X	X	X	
8/12/2009	12:28	LPR3-ARFT-Ind014	1	Tissue	X	X	X	X	X	
8/18/2009	8:05	LPR5-ARFT-Comp09	1	Tissue	X	X	X	X	X	
8/18/2009	8:15	LPR5-ARFT-Ind021	1	Tissue	X	X	X	X	X	
8/18/2009	8:42	LPR4-ARFT-Ind022	1	Tissue	X	X	X	X	X	
8/18/2009	12:30	LPR4-ARFT-Ind026	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by: Company: Alpha Analytical Date/Time: 7/20/10 1630 Rec'd by: UPS Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: CAS Company: Date/Time: 7/24/10 1010		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:



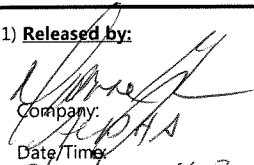
200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt: 7/21/10	Laboratory W.O. #:
Condition upon receipt: Good	Time of receipt: 1010
Cooler temperature: 4.5	Received by:

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Columbia Analytical COC reference: # LPR-CAS-EELF-B
 Attn: Lynda Huckestein Shipping Date: 07/20/2010
 Shipper: UPS Airbill Number: 1219678E 0141481077
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP, 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
8/19/2009	10:43	LPR5-ARFT-Comp12	1	Tissue	X	X	X	X	X	
8/19/2009	10:51	LPR5-ARFT-Ind030	1	Tissue	X	X	X	X	X	
8/19/2009	12:44	LPR4-ARFT-Comp07	1	Tissue	X	X	X	X	X	
8/19/2009	12:44	LPR4-ARFT-Ind034	1	Tissue	X	X	X	X	X	
8/20/2009	11:59	LPR5-ARFT-Comp10	1	Tissue	X	X	X	X	X	
8/20/2009	12:25	LPR5-ARFT-Ind040	1	Tissue	X	X	X	X	X	
8/20/2009	13:39	LPR4-ARFT-Comp08	1	Tissue	X	X	X	X	X	
8/20/2009	14:42	LPR4-ARFT-Ind044	1	Tissue	X	X	X	X	X	
8/21/2009	11:56	LPR5-ARFT-Ind049	1	Tissue	X	X	X	X	X	
8/21/2009	12:09	LPR5-ARFT-Ind048	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: <u>CAS</u> Date/Time: <u>7/20/10 1630</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: <u>Karla Smith</u> <u>CAS</u> Company: Date/Time: <u>7/21/10 1010</u>		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>7/21/10</u>	Laboratory W.O. #:
Condition upon receipt: <u>Good</u>	Time of receipt: <u>1010</u>
Cooler temperature: <u>4.5</u>	Received by: <u>SMH</u>

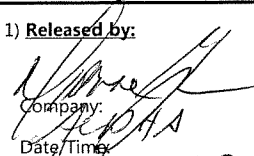
CHAIN-OF-CUSTODY/TEST REQUEST FORM

C1007620

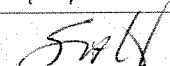
Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Columbia Analytical
 Attn: Lynda Huckestein
 Shipper: UPS
 Form filled out by: Jennifer Parker/Dianne Janak

COC reference: # LPR-CAS-EELF-B
 Shipping Date: 07/20/2010
 Airbill Number: 1219E78E 0141481077
 Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP, 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
8/19/2009	10:43	LPR5-ARFT-Comp12	1	Tissue	X	X	X	X	X	
8/19/2009	10:51	LPR5-ARFT-Ind030	1	Tissue	X	X	X	X	X	
8/19/2009	12:44	LPR4-ARFT-Comp07	1	Tissue	X	X	X	X	X	
8/19/2009	12:44	LPR4-ARFT-Ind034	1	Tissue	X	X	X	X	X	
8/20/2009	11:59	LPR5-ARFT-Comp10	1	Tissue	X	X	X	X	X	
8/20/2009	12:25	LPR5-ARFT-Ind040	1	Tissue	X	X	X	X	X	
8/20/2009	13:39	LPR4-ARFT-Comp08	1	Tissue	X	X	X	X	X	
8/20/2009	14:42	LPR4-ARFT-Ind044	1	Tissue	X	X	X	X	X	
8/21/2009	11:56	LPR5-ARFT-Ind049	1	Tissue	X	X	X	X	X	
8/21/2009	12:09	LPR5-ARFT-Ind048	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: <u>Alpha Analytical</u> Date/Time: <u>7/20/10 1630</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>7/21/10</u>	Laboratory W.O. #:
Condition upon receipt: <u>Good</u>	Time of receipt: <u>1010</u>
Cooler temperature: <u>4.5</u>	Received by: 



200 West Mercer Street
 Suite 401
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 Fax: (206) 217-9343

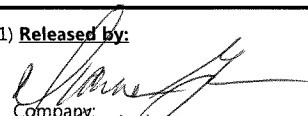

CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1007620

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Columbia Analytical**
 Attn: **Lynda Huckestein**
 Shipper: **UPS**
 Form filled out by: **Jennifer Parker/Dianne Janak**


COC reference: **# LPR-CAS-EELF-C**
 Shipping Date: **07/20/2010**
 Airbill Number: **1219E18E 014148 1077**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP-6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
8/25/2009	9:25	LPR6-ARFT-Ind065	1	Tissue	X	X	X	X	X	
8/27/2009	11:08	LPR7-ARFT-Ind071	1	Tissue	X	X	X	X	X	
8/29/2009	8:27	LPR6-ARFT-Ind073	1	Tissue	X	X	X	X	X	
9/1/2009	12:55	LPR1-ARFT-Comp01	1	Tissue	X	X	X	X	X	
9/2/2009	15:29	LPR1-ARFT-Comp02	1	Tissue	X	X	X	X	X	
9/5/2009	15:15	LPR5-ARFT-Ind086	1	Tissue	X	X	X	X	X	
9/8/2009	12:32	LPR8-ARFT-Comp17	1	Tissue	X	X	X	X	X	
9/8/2009	13:15	LPR8-ARFT-Comp21	1	Tissue	X	X	X	X	X	
9/8/2009	13:15	LPR8-ARFT-Comp22	1	Tissue	X	X	X	X	X	
9/9/2009	8:25	LPR8-ARFT-Comp14	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: Alpha Date/Time: 7/20/10 1630 Rec'd by:  Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

To be completed by Laboratory upon sample receipt:

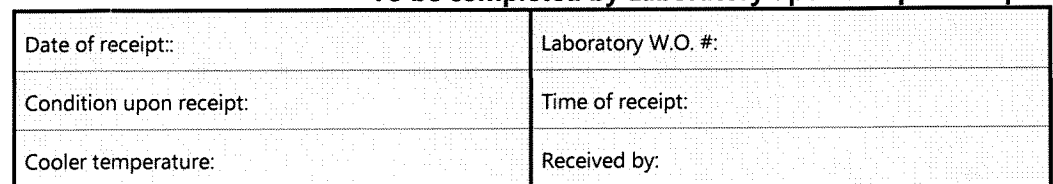


200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt: 7/21/10	Laboratory W.O. #:
Condition upon receipt: Good	Time of receipt: 1010
Cooler temperature: 4.5	Received by: 

To:	<u>Columbia Analytical</u>	COC reference:	<u># LPR-CAS-EELF-D</u>
Attn:	<u>Lynda Huckestein</u>	Shipping Date:	<u>07/20/2010</u>
Shipper:	<u>UPS</u>	Airbill Number:	<u>1Z19E18E0141481077</u>
Form filled out by:	<u>Jennifer Parker/Dianne Janak</u>	Turnaround requested:	<u>Standard</u>

To be completed by Laboratory upon sample receipt:

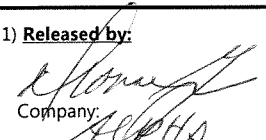


CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1007620

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC


To: Columbia Analytical COC reference: # LPR-CAS-EELWB-A
 Attn: Lynda Huckestein Shipping Date: 07/20/2010
 Shipper: UPS Airbill Number: 1219E18E0141481677
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP, 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/2/2009	14:59	LPR2-ARCT-Comp04	1	Tissue	X	X	X	X	X	
9/5/2009	12:03	LPR1-ARCT-Ind085	1	Tissue	X	X	X	X	X	
8/11/2009	7:46	LPR3-ARWB-Ind001	1	Tissue	X	X	X	X	X	
8/11/2009	11:30	LPR3-ARWB-Ind009	1	Tissue	X	X	X	X	X	
8/12/2009	11:36	LPR3-ARWB-Ind012	1	Tissue	X	X	X	X	X	
8/18/2009	11:28	LPR4-ARWB-Ind024	1	Tissue	X	X	X	X	X	
8/18/2009	12:39	LPR4-ARWB-Ind025	1	Tissue	X	X	X	X	X	
8/20/2009	12:30	LPR5-ARWB-Ind039	1	Tissue	X	X	X	X	X	
8/20/2009	14:42	LPR4-ARWB-Ind043	1	Tissue	X	X	X	X	X	
8/21/2009	11:50	LPR5-ARWB-Comp11	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>7/20/10 1630</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



200 West Mercer Street
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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

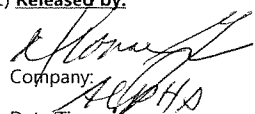
Date of receipt: <u>7/21/10</u>	Laboratory W.O. #:
Condition upon receipt: <u>Good</u>	Time of receipt: <u>1010</u>
Cooler temperature: <u>4.5</u>	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

K1007621

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

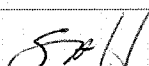
To: Columbia Analytical COC reference: # LPR-CAS-EELWB-A
 Attn: Lynda Huckestein Shipping Date: 07/20/2010
 Shipper: UPS Airbill Number: 1219E18E0141481077
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP, 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/2/2009	14:59	LPR2-ARCT-Comp04	1	Tissue	X	X	X	X	X	
9/5/2009	12:03	LPR1-ARCT-Ind085	1	Tissue	X	X	X	X	X	
8/11/2009	7:46	LPR3-ARWB-Ind001	1	Tissue	X	X	X	X	X	
8/11/2009	11:30	LPR3-ARWB-Ind009	1	Tissue	X	X	X	X	X	
8/12/2009	11:36	LPR3-ARWB-Ind012	1	Tissue	X	X	X	X	X	
8/18/2009	11:28	LPR4-ARWB-Ind024	1	Tissue	X	X	X	X	X	
8/18/2009	12:39	LPR4-ARWB-Ind025	1	Tissue	X	X	X	X	X	
8/20/2009	12:30	LPR5-ARWB-Ind039	1	Tissue	X	X	X	X	X	
8/20/2009	14:42	LPR4-ARWB-Ind043	1	Tissue	X	X	X	X	X	
8/21/2009	11:50	LPR5-ARWB-Comp11	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: Date/Time: <u>7/20/10 1430</u> Rec'd by: <u>UPS</u> Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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To be completed by Laboratory upon sample receipt:

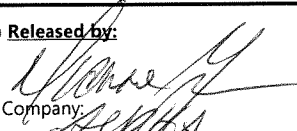
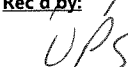
Date of receipt: <u>7/21/10</u>	Laboratory W.O. #:
Condition upon receipt: <u>Good</u>	Time of receipt: <u>1010</u>
Cooler temperature: <u>4.5</u>	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Columbia Analytical**
 Attn: **Lynda Huckestein**
 Shipper: **UPS**
 Form filled out by: **Jennifer Parker/Dianne Janak**


COC reference: **# LPR-CAS-EELWB-B**
 Shipping Date: **07/20/2010**
 Airbill Number: **129E78E014148 1077**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
8/22/2009	8:17	LPR4-ARWB-Ind060	1	Tissue	X	X	X	X	X	
8/22/2009	9:22	LPR5-ARWB-Ind062	1	Tissue	X	X	X	X	X	
8/27/2009	8:08	LPR7-ARWB-Ind070	1	Tissue	X	X	X	X	X	
8/27/2009	8:47	LPR6-ARWB-Ind069	1	Tissue	X	X	X	X	X	
8/29/2009	10:49	LPR6-ARWB-Ind074	1	Tissue	X	X	X	X	X	
9/3/2009	12:37	LPR1-ARWB-Comp03	1	Tissue	X	X	X	X	X	
9/7/2009	14:00	LPR8-ARWB-Comp16	1	Tissue	X	X	X	X	X	
9/8/2009	10:30	LPR8-ARWB-Comp15	1	Tissue	X	X	X	X	X	
9/8/2009	12:32	LPR8-ARWB-Comp18	1	Tissue	X	X	X	X	X	
9/9/2009	7:49	LPR8-ARWB-Comp13	1	Tissue	X	X	X	X	X	
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by:  Company: Date/Time: 7/20/10 1630 Rec'd by:  Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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To be completed by Laboratory upon sample receipt:

Date of receipt: 7/21/10	Laboratory W.O. #:
Condition upon receipt: Good	Time of receipt: 1010
Cooler temperature: 4.5	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	Task 16.1 (09.58.02.31)
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Columbia Analytical	COC reference:	# LPR-CAS-EELWB-C
Attn:	Lynda Huckestein	Shipping Date:	07/20/2010
Shipper:	UPS	Airbill Number:	1219E18E0141481077
Form filled out by:	Jennifer Parker/Dianne Janak	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					
					Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP 6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)	
9/9/2009	11:25	LPR8-ARWB-Comp19	1	Tissue	X	X	X	X	X	Comments / Instructions [lar tag number(s)]
Total Number of Containers			1 of 21	Purchase Order / Statement of Work # CAS09_01LPR						
1) Released by: Company: Date/Time: Rec'd by: 		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



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To be completed by Laboratory upon sample receipt:

Date of receipt:: 7/21/10	Laboratory W.O. #:
Condition upon receipt: Good	Time of receipt: 1010
Cooler temperature: 4.5	Received by: SAH

Maxxam Analytics

1 of 3

CH

28-Oct-09 19:58

MIKE CHALLIS

EST REQUEST FORM

Project/Client Name: Passaic RI/FS SedimentProject Number: 09.58.02.41Contact Name: Jennifer ParkerSampled By: Thai Do, Angelita Rodriquez

A9E5715

ASR

ENV-163

Maxxam Analytics

LPR-M102809-1

Mike Challis

Shipping Date: 10.28.09

Maxxam courier

Airbill Number: N/A

Form filled out by:

T•Do

Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]	
					OC Pesticides (1669 Mod - NYSDC HRMS-2)	PAHs (CARB 429 Mod)				
10/21/09	1137	LPRT15D	2	Sed	x	x				
10/21/09	1457	LPRT14A	2	Sed	x	x				
10/21/09	1308	LPRT15A	2	Sed	x	x				
10/21/09	1308	LPRT15A-FD	2	Sed	x	x				
10/21/09	0939	LPRT15E	2	Sed	x	x			SIF : Sample Inspection Resolved <input type="checkbox"/> By: _____ Date: _____	
10/21/09	1421	LPRT17D	2	Sed	x	x				
10/22/09	0922	LPRT13A	2	Sed	x	x				
10/22/09	1203	LPRT12E	2	Sed	x	x				
10/22/09	1203	LPRT12E-FD	2	Sed	x	x				
10/22/09	1606	LPRT13D	2	Sed	x	x				
Total Number of Containers			20	Purchase Order / Statement of Work #						
1) Released by: <u>Maria J. [Signature]</u> Company: Windward Environmental Date/Time: <u>10/28/09</u> Rec'd by: <u>[Signature]</u> Company: Maxxam Analytics Date/Time: <u>10/28/09</u>		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>09/10/28</u>	Laboratory W.O. #:
Condition upon receipt: <u>As Shown</u>	Time of receipt: <u>19:58</u>
Cooler temperature:	Received by: <u>2.7/3.4/4.1°C</u>


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2.0/1.3/1.2°C

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Sediment
 Project Number: 09.58.02.41
 Contact Name: Jennifer Parker
 Sampled By: Thai Do, Angelita Rodriquez

Ship to: Maxxam Analytics # LPR-M102809-2
 Attn: Mike Challis Shipping Date: 10.28.09
 Shipper: Maxxam courier Airbill Number: N/A
 Form filled out by: T Do Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1669 Mod - NYSEDEC HRMS-2)	PAHs (CARB 429 Mod)			
10/23/09	0903	LPRT12B	2	Sed	x	x			
10/23/09	1056	LPRT12C	2	Sed	x	x			
10/23/09	1416	LPRT12D	2	Sed	x	x			
10/24/09	0859	LPRT12A	2	Sed	x	x			
10/24/09	1045	LPRH12A	2	Sed	x	x			
10/26/09	1526	LPRT15B	2	Sed	x	x			
10/26/09	1205	LPRH16B	2	Sed	x	x			
10/26/09	1509	LPRT11G	2	Sed	x	x			
10/27/09	0954	LPRT16A	2	Sed	x	x			
10/27/09	1356	LPRT11A	2	Sed	x	x			
Total Number of Containers			20	Purchase Order / Statement of Work #					

1) Released by: <u>Maria Chilly</u> Company: <u>Windward Environmental</u> Date/Time: <u>10/28/09</u> Rec'd by: <u>[Signature]</u> Company: <u>Maxxam Analytics</u> Date/Time: <u>10/28/09</u>	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:
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To be completed by Laboratory upon sample receipt:

Date of receipt: <u>2009/10/28</u>	Laboratory W.O. #:
Condition upon receipt: <u>As Shipped</u>	Time of receipt: <u>09/10/28 19:58</u>
Cooler temperature: <u>2.07/3.14/4.14/2.07/1.3/1.2</u>	Received by: <u>As Shipped</u>

Date of receipt:: 2009/10/28	Laboratory W.O. #:
Condition upon receipt: Ashette	Time of receipt: 09/10/28 19:58
Cooler temperature: 2.7/3.4/4.1/5.6	Received by: Ashette

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Sediment
 Project Number: 09.58.02.41
 Contact Name: Jennifer Parker
 Sampled By: Thai Do, Angelita Rodriquez

Ship to: Maxxam Analytics # LPR-MA110509-1
 Attn: Mike Challis Shipping Date: 11.05.09
 Shipper: Maxxam courier Airbill Number: N/A
 Form filled out by: T Do Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1669 Mod - NYSDC HRMS-2)	PAHS (CARB 429 Mod)			
10/27/09	1559	LPRT11D	2	Sed	x	x			
10/28/09	1133	LPRT16E	2	Sed	x	x			
10/28/09	1306	LPRT11C	2	Sed	x	x			
10/28/09	0926	LPRT11E	2	Sed	x	x			
10/28/09	0926	LPRT11E-FD	2	Sed	x	x			
10/28/09	1359	LPRT11B	2	Sed	x	x			
10/29/09	1203	LPRT10A	2	Sed	x	x			
10/29/09	1054	LPRT10B	2	Sed	x	x			
10/29/09	1406	LPRT10C	2	Sed	x	x			
10/29/09	0929	LPRT16D	2	Sed	x	x			
Total Number of Containers			20	Purchase Order / Statement of Work #					
1) Released by: <i>Maxxam Analytics</i> Company: Windward Environmental Date/Time: 11.05.09/ 13:49 Rec'd by: <i>[Signature]</i> Company: Maxxam Analytics Date/Time: 11/5/09		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	



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To be completed by Laboratory upon sample receipt:

Date of receipt: <u>09/11/09</u>	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: <u>12:36</u>
Cooler temperature: <u>3.2/3.4/4.5°C</u> <u>4.6/4.3/3.6°C</u>	Received by: <i>[Signature]</i> Alisa Peter

05NOV 9 12:36

CH

13-Nov-09 12:48

ST REQUEST FORM

MIKE CHALLIS



A9F3590

ABO

ENV-970

Project/Client Name: Passaic RI/FS Sediment

Project Number: 09.58.02.41

Contact Name: Jennifer Parker

Sampled By: Thai Do, Angelita Rodriquez


Maxxam Analytics # LPR-MA111209b-2

Mike Challis Shipping Date: 11.12.09

Maxxam courier Airbill Number: N/A

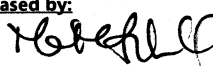
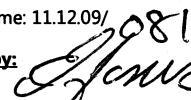
T Do Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1669 Mod - NYSEDEC HRMS-2)	PAHs (CARB 429 Mod)			
11/09/09	1501	LPRT06C	2	Sed	x	x			
11/09/09	1501	LPRT06C-FD	2	Sed	x	x			
11/10/09	0952	LPRT02D	2	Sed	x	x			
11/10/09	1103	LPRT03C	2	Sed	x	x			
11/10/09	0929	LPRT09A	2	Sed	x	x			
11/11/09	0800	LPRT04F	2	Sed	x	x			
11/11/09	1047	LPRT03F	2	Sed	x	x			
11/11/09	0834	LPRT04C	2	Sed	x	x			
11/11/09	0925	LPRH05B	2	Sed	x	x			
11/11/09	1043	LPRT05A	2	Sed	x	x			
Total Number of Containers			20	Purchase Order / Statement of Work #					



International Solid Sample Heat Treat Required

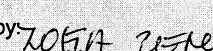
High Risk material
Controlled Storage and Disposal

1) Released by:  Company: Windward Environmental Date/Time: 11.12.09/ Rec'd by:  Company: Maxxam Analytics Date/Time: 11-12-09 8:15	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:
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Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

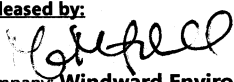

Date of receipt:	Laboratory W.O. #:
Condition upon receipt: 0.8/1.2/1.7°C 3.8/4.2/3.5°C	Time of receipt:
Cooler temperature: 1/1.8/0.4°C 1.2/2.3/2.5°C 0.8/1.5/1.0°C	Received by:  09 NOV 13 12:48

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Sediment**
 Project Number: **09.58.02.41**
 Contact Name: **Jennifer Parker**
 Sampled By: **Thai Do, Angelita Rodriquez**

Ship to: **Maxxam Analytics** # LPR-MA111209b-3
 Attn: **Mike Challis** Shipping Date: **11.12.09**
 Shipper: **Maxxam courier** Airbill Number: **N/A**
 Form filled out by: **T Do** Turnaround requested: **Standard**

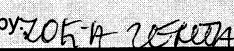
Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1669 Mod - NYSDC HRMS-2)	PAHs (CARB 429 Mod)				
11/11/09	1430	LPRT05A-RB	2	Water	x	x				
11/11/09	1515	LPR-RW	2	Water	x	x				
Total Number of Containers			4	Purchase Order / Statement of Work #						

1) Released by:  Company: Windward Environmental Date/Time: 11.12.09/ 0811 Rec'd by:  Company: Maxxam Analytics Date/Time: 11-12-09 8:15	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:
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To be completed by Laboratory upon sample receipt:

Date of receipt: 0.8 1.2 1.7 °C	Laboratory W.O. #:
Condition upon receipt: 3.8 4.2 °C 3.5 °C	Time of receipt: 09 NOV 13 12:48
Cooler temperature: 11.8 0.4 °C	Received by:  09/11/13 12:48

1 of 1

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Sediment

Project Number: 09.58.02.41

Contact Name: Jennifer Parker

Sampled By: Thai Do, Angelita Rodriquez

Ship to: Maxxam Analytics # LPR-MA111609-1

Attn: Mike Challis Shipping Date: 11.16.09

Shipper: Maxxam courier Airbill Number: N/A

Form filled out by: T Do Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1669 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
11/11/09	1453	LPRH09B	2	Sed	x	x			
11/12/09	1105	LPRT03G	2	Sed	x	x			
11/12/09	0909	LPRH13B	2	Sed	x	x			
11/12/09	0928	LPRH05A	2	Sed	x	x			
11/12/09	1009	LPRH07B	2	Sed	x	x			
11/12/09	1046	LPRH10A	2	Sed	x	x			
11/12/09	1128	LPRH11A	2	Sed	x	x			
11/12/09	1201	LPRH11B	2	Sed	x	x			
11/12/09	1239	LPRH16A	2	Sed	x	x			
11/12/09	1433	LPRH12B	2	Sed	x	x			
Total Number of Containers			20	Purchase Order / Statement of Work #					

SIF : Sample Inspection
 Resolved ☐ By: 12A, 10A, 7A
 Date: _____

1) Released by: <u>[Signature]</u> Company: <u>Windward Environmental</u> Date/Time: <u>11.16.09/ 12:30</u> Rec'd by: <u>[Signature]</u> Company: <u>Maxxam Analytics</u> Date/Time: <u>11.16.09/1230</u>	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	5) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:
--	--	--	--	--



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:


Date of receipt: <u>2009/11/19</u>	Laboratory W.O. #:
Condition upon receipt: <u>Some broken</u>	Time of receipt: <u>13:54</u> 09NOV19 13:54
Cooler temperature: <u>3/3/4°C</u>	Received by: <u>[Signature] AKWAS1</u>


CHAIN-OF-CUSTODY/TEST REQUEST FORM

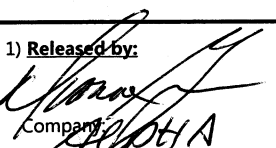
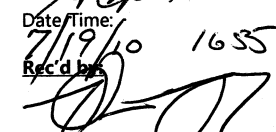
Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics**
 Attn: **Mike Challis**
 Shipper: **Maxxam courier**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference: **# LPR-MA-EELF-A**
 Shipping Date: **07/19/2010**
 Airbill Number: **NA**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDDEC HRMS-2)	PAHS (CARB 429 Mod)			
8/11/2009	8:00	LPR3-ARFT-Comp20	1	Tissue	X	X			
8/11/2009	8:50	LPR3-ARFT-Comp06	1	Tissue	X	X			
8/11/2009	9:13	LPR3-ARFT-Ind005	1	Tissue	X	X			
8/11/2009	11:08	LPR3-ARFT-Comp05	1	Tissue	X	X			
8/12/2009	9:00	LPR3-ARFT-Ind010	1	Tissue	X	X			
8/12/2009	12:28	LPR3-ARFT-Ind014	1	Tissue	X	X			
8/18/2009	8:05	LPR5-ARFT-Comp09	1	Tissue	X	X			
8/18/2009	8:15	LPR5-ARFT-Ind021	1	Tissue	X	X			
8/18/2009	8:42	LPR4-ARFT-Ind022	1	Tissue	X	X			
8/18/2009	12:30	LPR4-ARFT-Ind026	1	Tissue	X	X			
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # MAX09_01LPR R					

21-Jul-10 11:40
 MIKE CHALLIS

 B096590
 ABH FZ-13


International Solid Sample Heat Treat Required
 High Risk material
 Controlled Storage and Disposal


1) Released by:  Company: ALPHA Date/Time: 7/19/10 1635 Rec'd by:  Company: MAXXAM Date/Time: 7/19/10	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:
---	--	--

NOTES
 Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).



200 West Mercer Street
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 Tel: (206) 378-1364
 Fax: (206) 217-9343

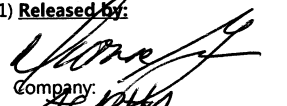
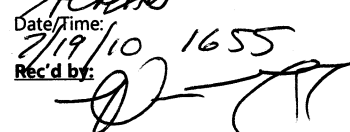
To be completed by Laboratory upon sample receipt:

Date of receipt: 2010/07/21	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 11:40
Cooler temperature: 6.4 7.8 8.1 °C	Received by:  ASAD BMAI

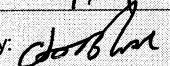
CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics** COC reference: **# LPR-MA-EELF-B**
 Attn: **Mike Challis** Shipping Date: **07/19/2010**
 Shipper: **Maxxam courier** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
8/19/2009	10:43	LPR5-ARFT-Comp12	1	Tissue	X	X			
8/19/2009	10:51	LPR5-ARFT-Ind030	1	Tissue	X	X			
8/19/2009	12:44	LPR4-ARFT-Comp07	1	Tissue	X	X			
8/19/2009	12:44	LPR4-ARFT-Ind034	1	Tissue	X	X			
8/20/2009	11:59	LPR5-ARFT-Comp10	1	Tissue	X	X			
8/20/2009	12:25	LPR5-ARFT-Ind040	1	Tissue	X	X			
8/20/2009	13:39	LPR4-ARFT-Comp08	1	Tissue	X	X			
8/20/2009	14:42	LPR4-ARFT-Ind044	1	Tissue	X	X			
8/21/2009	11:56	LPR5-ARFT-Ind049	1	Tissue	X	X			
8/21/2009	12:09	LPR5-ARFT-Ind048	1	Tissue	X	X			
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by:  Company: MAXXAM Date/Time: 7/19/10 1655 Rec'd by:  Company: MAXXAM Date/Time: 7/19/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

To be completed by Laboratory upon sample receipt:

Date of receipt: 2010/07/21	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 11:40
Cooler temperature: 6.4/7.8/8.1°C	Received by:  ASAD BHARADWAJ

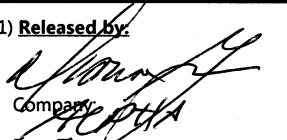
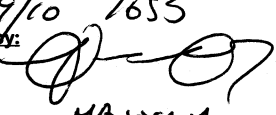


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 Fax: (206) 217-9343

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

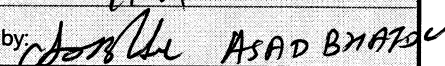
To: **Maxxam Analytics**
 Attn: **Mike Challis**
 Shipper: **Maxxam courier**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference: **# LPR-MA-EELF-C**
 Shipping Date: **07/19/2010**
 Airbill Number: **NA**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod - NYSDDEC HRMS-2)	PAHs (CARB 429 Mod)			
8/25/2009	9:25	LPR6-ARFT-Ind065	1	Tissue	X	X			
8/27/2009	11:08	LPR7-ARFT-Ind071	1	Tissue	X	X			
8/29/2009	8:27	LPR6-ARFT-Ind073	1	Tissue	X	X			
9/1/2009	12:55	LPR1-ARFT-Comp01	1	Tissue	X	X			
9/2/2009	15:29	LPR1-ARFT-Comp02	1	Tissue	X	X			
9/5/2009	15:15	LPR5-ARFT-Ind086	1	Tissue	X	X			
9/8/2009	12:32	LPR8-ARFT-Comp17	1	Tissue	X	X			
9/8/2009	13:15	LPR8-ARFT-Comp21	1	Tissue	X	X			
9/8/2009	13:15	LPR8-ARFT-Comp22	1	Tissue	X	X			
9/9/2009	8:25	LPR8-ARFT-Comp14	1	Tissue	X	X			
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by:  Company: MAXXAM Date/Time: 7/19/10 1655 Rec'd by:  Company: WINDWARD Date/Time: 7/19/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			



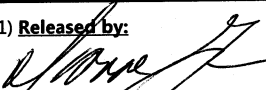
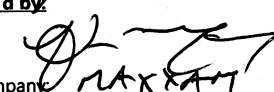
200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 2010/07/21	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 11:40
Cooler temperature: 6.4/7.8/8.1°	Received by:  ASAD BHATIA

CHAIN-OF-CUSTODY/TEST REQUEST FORM

To:	Maxxam Analytics	COC reference:	# LPR-AP-MALF-D
Attn:	Mike Challis	Shipping Date:	07/19/2010
Shipper:	Maxxam courier	Airbill Number:	NA
Form filled out by:	Jennifer Parker/Dianne Janak	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod – NYSDEC HRMS-2)	PAHs (CARB 429 Mod)				
9/2/2009	14:59	LPR2-ARFT-Comp04	1	Tissue	X	X				
9/5/2009	12:03	LPR1-ARFT-Ind085	1	Tissue	X	X				
Total Number of Containers			2 of 32	Purchase Order / Statement of Work # MAX09_01LPR						
1) Released by:  Company: Date/Time: Rec'd by:  Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

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Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 2010/07/21	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 11:40
Cooler temperature: 6.4/7.8/8.1°C	Received by: <i>ASAD BROAD</i>

1 of 4

IMMEDIATE TEST
CHAIN-OFInternational Solid
Sample
Heat Treat Required

JEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

High Risk material
 Controlled Storage and Disposal
 Attn: **Mike Challis**
 Shipper: **Maxxam courier**
 Form filled out by: **Jennifer Parker/Dianne Janak**

COC reference # **LPR-MA-CATC-A**
 Shipping Date: **07/07/2010**
 Airbill Number:
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (Jar tag number(s))
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHS (CARB 429 Mod)				
9/12/2009	9:35	LPR8-WSCT-Ind009	1	Tissue	X	X				9-Jul-10 09:05 MIKE CHALLIS B090038 DKN FZ-13
9/12/2009	11:16	LPR8-WSCT-Ind013	1	Tissue	X	X				
9/15/2009	8:34	LPR5-WSCT-Ind019	1	Tissue	X	X				
9/18/2009	11:57	LPR5-WSCT-Ind020	1	Tissue	X	X				
9/18/2009	14:10	LPR4-WSCT-Ind023	1	Tissue	X	X				
8/18/2009	8:15	LPR5-IPCT-Ind001	1	Tissue	X	X				
8/25/2009	7:17	LPR6-IPCT-Ind003	1	Tissue	X	X				
8/26/2009	8:29	LPR6-IPCT-Ind004 *	1	Tissue	X	X				
8/26/2009	10:18	LPR7-IPCT-Ind005 *	1	Tissue	X	X				
8/27/2009	9:34	LPR7-IPCT-Ind006 *	1	Tissue	X	X				

Total Number of Containers

10 of 35

Purchase Order / Statement of Work # MAX09_01LPR

1) Released by:

Company:

Date/Time:

Rec'd by:

Company:

Date/Time:

2) Released by:

Company:

Date/Time:

Rec'd by:

Company:

Date/Time:

3) Released by:

Company:

Date/Time:

Rec'd by:

Company:

Date/Time:

NOTES

Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).

Windward
 environmental LLC

200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10/07/09 9:05
Cooler temperature: 1.0/3.2/2.6°C 1.1/2.1/2.2°C	Received by: <i>[Signature]</i> ASHLEY SUGG HARR

9-Jul-10 09:05

MIKE CHALLIS

TEST REQUEST FORM

Project/Client Name: Passaic RI/FS TissueProject Number: Task 16.1 (09.58.02.31)Contact Name: Jennifer ParkerSampled By: Windward Environmental LLC

B090038

DKN

FZ-13

Maxxam Analytics

Mike Challis

Maxxam courier

Jennifer Parker/Dianne Janak

COC reference: # LPR-MA-CATC-C

Shipping Date: 07/07/2010

Airbill Number:

Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
8/19/2009	10:51	LPR5-ACCT-Ind006	1	Tissue	X	X			
8/25/2009	8:25	LPR6-ACCT-Ind008	1	Tissue	X	X			
8/25/2009	8:25	LPR6-ACCT-Ind009	1	Tissue	X	X			
8/26/2009	7:55	LPR6-ACCT-Ind010 *	1	Tissue	X	X			
8/27/2009	7:27	LPR6-ACCT-Ind013 *	1	Tissue	X	X			
8/27/2009	9:48	LPR7-ACCT-Ind014 *	1	Tissue	X	X			
8/29/2009	11:11	LPR6-ACCT-Ind016	1	Tissue	X	X			
8/29/2009	12:06	LPR7-ACCT-Ind017	1	Tissue	X	X			
9/2/2009	14:13	LPR2-ACCT-Ind018	1	Tissue	X	X			
9/8/2009	8:04	LPR8-ACCT-Ind019	1	Tissue	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # MAX09_01LPR					

1) Released by: Company: <u>Alpha</u> Date/Time: <u>7/7/10 1730</u> Rec'd by: Company: <u>MAXXAM</u> Date/Time: <u>7/7/10</u>	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: <u>10/6/09 9:05</u>
Cooler temperature: <u>1.0/3.8/26°C</u>	Received by: <u>ASH/PAH S4KUBAKA</u>

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 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

1.1/2.1/2.2°C

1 of 4



International Solid Sample Heat Treat Required

9-Jul-10 09:05

MIKE CHALLIS



B090084

ASR

FZ-13

Reference # LPR-MA-CATF-A

Project/Client Name: Passaic RI/FS TissueProject Number: Task 16.1 (09.58.02.31)Contact Name: Jennifer ParkerSampled By: Windward Environmental LLCHigh Risk material
Controlled Storage and Disposal
Attn:

Shipper:

Form filled out by:

Mike

Maxxam courier

Jennifer Parker/Dianne Janak

Airbill Number:

Turnaround requested: StandardDate: 07/07/2010

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions (Jar tag number(s))
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
9/12/2009	9:35	LPR8-WSFT-Ind009	1	Tissue	X	X			
9/12/2009	11:16	LPR8-WSFT-Ind013	1	Tissue	X	X			
9/15/2009	8:34	LPR5-WSFT-Ind019	1	Tissue	X	X			
9/18/2009	11:57	LPR5-WSFT-Ind020	1	Tissue	X	X			
9/18/2009	14:10	LPR4-WSFT-Ind023	1	Tissue	X	X			
8/18/2009	8:15	LPR5-IPFT-Ind001	1	Tissue	X	X			
8/25/2009	7:17	LPR6-IPFT-Ind003	1	Tissue	X	X			
8/26/2009	8:29	LPR6-IPFT-Ind004	1	Tissue	X	X			
8/26/2009	10:18	LPR7-IPFT-Ind005	1	Tissue	X	X			
8/27/2009	9:34	LPR7-IPFT-Ind006	1	Tissue	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by: Company: <u>MAXXAM</u> Date/Time: <u>7/7/10 1730</u> Rec'd by: Company: <u>MAXXAM</u> Date/Time: <u>7/7/10</u>		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: <u>10/02/09 9.05</u>
Cooler temperature: <u>1.0/3.7/2.6°C</u> <u>1.1/2.1/2.2°C</u>	Received by: <u>ASHLEY SIKKIMAR</u>

Windward

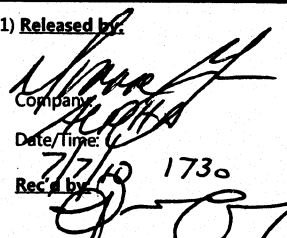
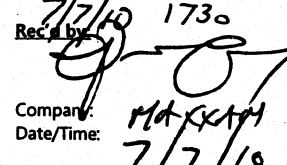
environmental LLC

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Fax: (206) 217-9343

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Maxxam Analytics COC reference: # LPR-MA-CATF-C
 Attn: Mike Challis Shipping Date: 07/07/2010
 Shipper: Maxxam courier Airbill Number: _____
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions (Jar tag number(s))
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
8/19/2009	10:51	LPR5-ACFT-Ind006	1	Tissue	X	X			
8/25/2009	8:25	LPR6-ACFT-Ind008	1	Tissue	X	X			
8/25/2009	8:25	LPR6-ACFT-Ind009	1	Tissue	X	X			
8/26/2009	7:55	LPR6-ACFT-Ind010	1	Tissue	X	X			
8/27/2009	7:27	LPR6-ACFT-Ind013	1	Tissue	X	X			
8/27/2009	9:48	LPR7-ACFT-Ind014	1	Tissue	X	X			
8/29/2009	11:11	LPR6-ACFT-Ind016	1	Tissue	X	X			
8/29/2009	12:06	LPR7-ACFT-Ind017	1	Tissue	X	X			
9/2/2009	14:13	LPR2-ACFT-Ind018	1	Tissue	X	X			
9/8/2009	8:04	LPR8-ACFT-Ind019	1	Tissue	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by:  Company: _____ Date/Time: 7/7/10 1730 Rec'd by:  Company: Maxxam Date/Time: 7/7/10		2) Released by: Company: _____ Date/Time: _____ Rec'd by: Company: _____ Date/Time: _____		3) Released by: Company: _____ Date/Time: _____ Rec'd by: Company: _____ Date/Time: _____		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

Windward
 environmental LLC

200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

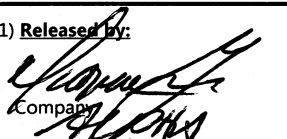
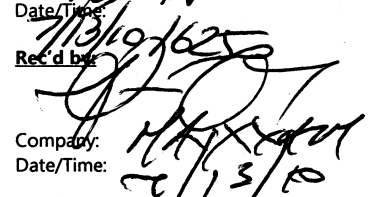
To be completed by Laboratory upon sample receipt:


Date of receipt: _____	Laboratory W.O. #: _____
Condition upon receipt: 1.0/3.7/2.62	Time of receipt: 10/07/09 9:05
Cooler temperature: 1.1/2.1/2.2°C	Received by: ASLH, JN, SUGU

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics** COC reference: **# LPR-MA-PERWB-A**
 Attn: **Mike Challis** Shipping Date: **07/13/2010**
 Shipper: **Maxxam courier** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod - NY/DEC HRMS-2)	PAHs (CARB 429 Mod)			
9/2/2009	15:46	LPR1-MACT-Ind145	1	Tissue	X	X			
8/11/2009	7:21	LPR3-MAWB-Comp06	1	Tissue	X	X			
8/13/2009	11:52	LPR3-MAWB-Comp09	1	Tissue	X	X			
8/13/2009	11:52	LPR3-MAWB-Comp10	1	Tissue	X	X			
8/13/2009	11:52	LPR3-MAWB-Comp11	1	Tissue	X	X			
8/13/2009	11:52	LPR3-MAWB-Comp12	1	Tissue	X	X			
8/13/2009	11:52	LPR3-MAWB-Comp30	1	Tissue	X	X			
8/25/2009	11:09	LPR7-MAWB-Ind123	1	Tissue	X	X			
8/26/2009	10:37	LPR7-MAWB-Comp25	1	Tissue	X	X			
8/27/2009	6:56	LPR6-MAWB-Ind128	1	Tissue	X	X			
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by:  Company: Alpha Date/Time: 7/13/10 16:25 Rec'd by:  Company: Maxxam Date/Time: 7/13/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

15-Jul-10 10:14
 MIKE CHALLIS

 B093245
 ABH ENV-231



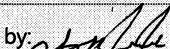
**International Solid
Sample
Heat Treat Required**

High Risk material
Controlled Storage and Disposal

Windward
environmental LLC

200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

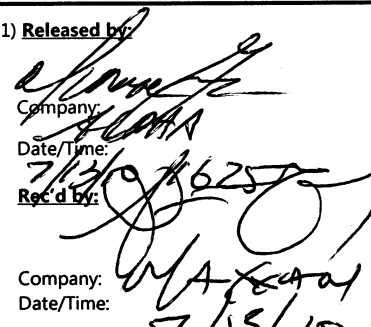

Date of receipt: 2010/07/15	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10:14
Cooler temperature: 3.1/1.8/2.9°C	Received by:  ASAD BHAIIDU

CHAIN-OF-CUSTODY/TEST REQUEST FORM

13093245

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

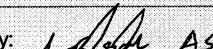
To: **Maxxam Analytics** COC reference: **# LPR-MA-PERWB-B**
 Attn: **Mike Challis** Shipping Date: **07/13/2010**
 Shipper: **Maxxam courier** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod - NYSEDEC HRMS-2)	PAHs (CARB 429 Mod)			
9/1/2009	12:59	LPR1-MAWB-Ind138	1	Tissue	X	X			
9/4/2009	11:25	LPR2-MAWB-Ind158	1	Tissue	X	X			
9/7/2009	13:15	LPR8-MAWB-Comp32	1	Tissue	X	X			
9/12/2009	9:35	LPR8-MAWB-Comp28	1	Tissue	X	X			
9/12/2009	9:35	LPR8-MAWB-Comp29	1	Tissue	X	X			
9/15/2009	9:23	LPR4-MAWB-Comp14	1	Tissue	X	X			
9/17/2009	9:52	LPR5-MAWB-Comp19	1	Tissue	X	X			
9/17/2009	10:04	LPR5-MAWB-Comp18	1	Tissue	X	X			
9/18/2009	11:57	LPR5-MAWB-Comp23	1	Tissue	X	X			
9/18/2009	13:19	LPR4-MAWB-Comp15	1	Tissue	X	X			
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by:  Company: Maxxam Analytics Date/Time: 7/13/10 16:25 Rec'd by:  Company: Windward Environmental LLC Date/Time: 7/13/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

Windward
 environmental LLC

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 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 2010/07/15	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10:14
Cooler temperature: 3.1/1.8/2.9	Received by:  ASAD BHAIKU

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics**
 Attn: **Mike Challis**
 Shipper: **Maxxam courier**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference: **# LPR-MA-PERF-A**
 Shipping Date: **07/13/2010**
 Airbill Number: **NA**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
8/11/2009	9:56	LPR3-MAFT-Comp02	1	Tissue	X	X			
8/11/2009	10:08	LPR3-MAFT-Comp03	1	Tissue	X	X			
8/12/2009	9:24	LPR3-MAFT-Comp04	1	Tissue	X	X			
8/13/2009	10:00	LPR3-MAFT-Comp05	1	Tissue	X	X			
8/13/2009	11:52	LPR3-MAFT-Comp07	1	Tissue	X	X			
8/13/2009	11:52	LPR3-MAFT-Comp08	1	Tissue	X	X			
8/14/2009	8:44	LPR3-MAFT-Comp13	1	Tissue	X	X			
8/25/2009	7:30	LPR6-MAFT-Comp24	1	Tissue	X	X			
8/25/2009	9:54	LPR6-MAFT-Ind122	1	Tissue	X	X			
9/1/2009	13:10	LPR1-MAFT-Comp01	1	Tissue	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # MAX09_01LPR					

1) Released by: *[Signature]*
 Company: *MAXXAM*
 Date/Time: *7/13/10 10:25*
 Rec'd by: *[Signature]*
 Company: *MAXXAM*
 Date/Time: *7/13/10*

2) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

3) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

NOTES
 Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).

15-Jul-10 10:14
 MIKE CHALLIS

 B093261
 ABH ENV-231



**International Solid
 Sample
 Heat Treat Required**

High Risk material
 Controlled Storage and Disposal



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

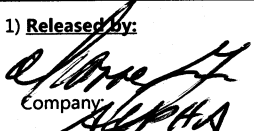
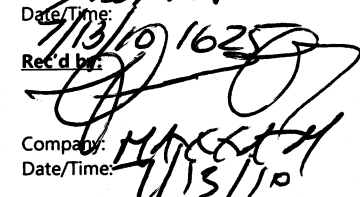
Date of receipt: <i>2010/07/15</i>	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: <i>10:14</i>
Cooler temperature: <i>3.1/1.8/2.9°C</i>	Received by: <i>[Signature]</i> ASAD BHATIA

CHAIN-OF-CUSTODY/TEST REQUEST FORM

B093261

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Maxxam Analytics COC reference: # LPR-MA-PERF-B
 Attn: Mike Challis Shipping Date: 07/13/2010
 Shipper: Maxxam courier Airbill Number: NA
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
9/10/2009	8:38	LPR8-MAFT-Comp26	1	Tissue	X	X			
9/10/2009	9:30	LPR8-MAFT-Comp31	1	Tissue	X	X			
9/12/2009	9:35	LPR8-MAFT-Comp27	1	Tissue	X	X			
9/18/2009	10:35	LPR5-MAFT-Comp20	1	Tissue	X	X			
9/18/2009	10:35	LPR5-MAFT-Comp21	1	Tissue	X	X			
9/18/2009	11:57	LPR5-MAFT-Comp22	1	Tissue	X	X			
9/18/2009	13:50	LPR4-MAFT-Comp16	1	Tissue	X	X			
9/18/2009	14:10	LPR4-MAFT-Comp17	1	Tissue	X	X			
9/2/2009	15:46	LPR1-MAFT-Ind145	1	Tissue	X	X			
Total Number of Containers			9 of 19	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>7/13/10 1625</u> Rec'd by:  Company: <u>Maxxam</u> Date/Time: <u>7/15/10</u>		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>2010/07/15</u>	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: <u>10:14</u>
Cooler temperature: <u>3.1/1.8/2.9°C</u>	Received by: <u>ASAD BHAIKU</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue** To: **Maxxam Analytics** # LPR-MA-MH-1A
 Project Number: **09.58.02.31** Attn: **Mike Challis** Shipping Date: **03/24/2010**
 Contact Name: **Jennifer Parker** Shipper: **Maxxam courier** Airbill Number: _____
 Sampled By: **Windward Environmental LLC** Form filled out by: **Jennifer Parker Diane Janak** Turnaround requested: **Standard**



International Solid

Sample

Heat Treat Required

High Risk material
Controlled Storage and Disposal

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)			Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHS (CARB 429 Mod)		
8/26/2009	07:12	LPR6-CSMH-Comp37	1	Tissue	X	X		25-Mar-10 18:27 MIKE CHALLIS B036065 ASR ENV-190
9/15/2009	09:58	LPR6-CSMH-Comp38	1	Tissue	X	X		
8/20/2009	13:03	LPR4-CSMH-Comp31	1	Tissue	X	X		
8/27/2009	07:13	LPR6-CSMH-Comp41	1	Tissue	X	X		
8/25/2009	07:26	LPR6-CSMH-Comp42	1	Tissue	X	X		
8/27/2009	07:52	LPR6-CSMH-Comp44	1	Tissue	X	X		
8/25/2009	09:24	LPR7-CSMH-Comp45	1	Tissue	X	X		
8/25/2009	09:24	LPR7-CSMH-Comp46	1	Tissue	X	X		
8/25/2009	09:35	LPR7-CSMH-Comp49	1	Tissue	X	X		
8/26/2009	08:58	LPR7-CSMH-Comp53	1	Tissue	X	X		

Total Number of Containers

10 of 21

Purchase Order / Statement of Work # MAX09_01LPR

1) Released by:

Company: Alpha Analytical

Date/Time:

3/24/10

Rec'd by:

Company:

Date/Time:

3/24/10

2) Released by:

Company:

Maxxam

Date/Time:

10/03/25 18:27

Rec'd by:

AKWASI Beating

Company:

Maxxam Analytics

Date/Time: 10/03/26 11:00

3) Released by:

Company:

Maxxam Analytics

Date/Time:

10/03/26 12:05

Rec'd by:

Company:

Date/Time:

4) Released by:

Company:

Date/Time:

Rec'd by:

Company:

Date/Time:

NOTES

Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.



200 West Mercer Street
Suite 401
Seattle, WA 98119
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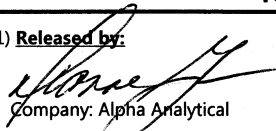

To be completed by Laboratory upon sample receipt:

Date of receipt: <i>AKWASI 10/03/25</i>	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: <i>18:27</i>
Cooler temperature: <i>-3.0/-2.9/-3.1°C</i>	Received by: <i>Ashita Surkuma</i>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue** To: **Maxxam Analytics** # LPR-MA-MH-1B
 Project Number: **09.58.02.31** Attn: **Mike Challis** Shipping Date: **03/24/2010**
 Contact Name: **Jennifer Parker** Shipper: **Maxxam courier** Airbill Number: _____
 Sampled By: **Windward Environmental LLC** Form filled out by: **Jennifer Parker / Diane Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
9/10/2009	13:02	LPR8-CSMH-Comp61	1	Tissue	X	X			
8/25/2009	09:39	LPR7-CSMH-Comp48	1	Tissue	X	X			
9/9/2009	09:54	LPR8-CSMH-Comp54	1	Tissue	X	X			
8/25/2009	09:35	LPR7-CSMH-Comp50	1	Tissue	X	X			
9/9/2009	09:54	LPR8-CSMH-Comp55	1	Tissue	X	X			
9/8/2009	08:44	LPR8-CSMH-Comp56	1	Tissue	X	X			
9/9/2009	08:56	LPR8-CSMH-Comp57	1	Tissue	X	X			
9/1/2009	12:33	LPR1-CSMH-Comp01	1	Tissue	X	X			
9/2/2009	15:02	LPR1-CSMH-Comp02	1	Tissue	X	X			
9/2/2009	15:46	LPR1-CSMH-Comp03	1	Tissue	X	X			
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # MAX09_01LPR					

1) Released by:  Company: Alpha Analytical Date/Time: 3/24/10 17:05 Rec'd by:  Company: Maxxam Analytics Date/Time: 3/24/10 11:00	2) Released by: Ashitta Sukuma Company: Maxxam Date/Time: 10/03/25 18:27 Rec'd by: Ashitta Sukuma Company: Maxxam Analytics Date/Time: 10/03/26 11:00	3) Released by: Ashitta Sukuma Company: Maxxam Analytics Date/Time: 10/03/26 12:05 Rec'd by: Ashitta Sukuma Company: Maxxam Analytics Date/Time: 10/03/26 11:00	4) Released by: Company: _____ Date/Time: _____ Rec'd by: Company: _____ Date/Time: _____	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.
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200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 10/03/25	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 18:27
Cooler temperature: -3.0/-2.9/-3.1°C	Received by: Ashitta Sukuma ASHITTA SUKUMA

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Maxxam Analytics		# LPR-MA-MH-1C
Attn:	Mike Challis	Shipping Date:	03/24/2010
Shipper:	Maxxam courier	Airbill Number:	
Form filled out by:	Jennifer Parker / Diane Janak	Turnaround requested:	Standard

[illegible]

200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt:: 10/03/25	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 18:27
Cooler temperature: -3.0/-2.9/-3.1°C	Received by: Ashika Suckman

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Maxxam Analytics		# LPR-MA-RB1
Attn:	Mike Challis	Shipping Date:	03/24/2010
Shipper:	Maxxam courier	Airbill Number:	
Form filled out by:	Ellen Collins / Diane Janak	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)						Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)					
3/23/2010	16:15	LPR-032310-RB	2	Water	X	X					
Total Number of Containers			2	Purchase Order / Statement of Work # MAX09_01LPR							

1) Released by: [Signature]
Company: Alpha Analytical
Date/Time: 3/24/10 1705
Rec'd by: [Signature]

2) Released by: Ashantha Sukumaran
Company: Maxxam
Date/Time: 10/03/25 18:22
Rec'd by: Akwasi B.
Company: Maxxam
Date/Time: 2010/03/25 19:18

3) Released by: [Signature]
Company: Maxxam
Date/Time: 2010/03/25/19:18
Rec'd by:

4) Released by:
Company:
Date/Time:
Rec'd by:
Company:
Date/Time:

NOTES

MAR 25 10



200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 10/03/25	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 18:22
Cooler temperature: 1-9/2.0/2, °C	Received by: Ashlie Lukeana

Asahi Hm

1


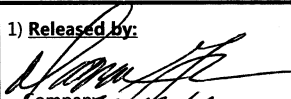

of

1

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics** # LPR-MA-HT-A
 Attn: **Mike Challis** Shipping Date: **4/13/2010**
 Shipper: **Maxxam courier** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)			Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDC HRMS-2)	PAHs (CARB 429 Mod)		
9/1/2009	13:10	LPR1-CSHT-Comp05	1	Tissue	X	X		14-Apr-10 10:06 MIKE CHALLIS  B044239 AKP FZ-13
9/1/2009	11:03	LPR2-CSHT-Comp63	1	Tissue	X	X		
9/3/2009	11:10	LPR1-CSHT-Comp09	1	Tissue	X	X		
8/11/2009	07:21	LPR3-CSHT-Comp64	1	Tissue	X	X		
9/2/2009	14:13	LPR2-CSHT-Comp21	1	Tissue	X	X		
8/25/2009	09:24	LPRX-CSHT-Comp65	1	Tissue	X	X		
9/8/2009	07:48	LPR8-CSHT-Comp66	1	Tissue	X	X		
Total Number of Containers			7	Purchase Order / Statement of Work # MAX09_01LPR				
1) Released by:  Company: Alpha Date/Time: 4/13/10 1040 Rec'd by:  Company: Date/Time: 4/13/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.



International Solid Sample Heat Treat Required

High Risk material
Controlled Storage and Disposal

To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10/04/10 10:06
Cooler temperature:	Received by: ZOFIA ZENITA



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

10 APR 14 10:06
 -29.7/-29/-29.10C

Project/Client Name:	Passaic RI/FS Tissue	To:	Maxxam Analytics	# LPR-MA-RB2
Project Number:	09.58.02.31	Attn:	Mike Challis	Shipping Date: 04/14/2010
Contact Name:	Jennifer Parker	Shipper:	Maxxam courier	Airbill Number: NA
Sampled By:	Windward Environmental LLC	Form filled out by:	Ellen Collins/Diane Janak	Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)						
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)					
4/12/2010	10:40	LPR-041210-RB	2	Water	X	X					Comments / Instructions [lar tag number(s)]
Total Number of Containers			2	Purchase Order / Statement of Work # MAX09_01LPR							
1) Released by: Company: Date/Time: 4/13/10 1035 <u>Rec'd by:</u> Company: Date/Time: 4/13/10		2) Released by: Company: Date/Time: <u>Rec'd by:</u> Company: Date/Time:		3) Released by: Company: Date/Time: <u>Rec'd by:</u> Company: Date/Time:		4) Released by: Company: Date/Time: <u>Rec'd by:</u> Company: Date/Time:		NOTES <div style="text-align: right;"> 2-9/3/3.2 10 APR 11 </div>			



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Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343


To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:


CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue** To: **Maxxam Analytics** # LPR-MA-MH-2A
 Project Number: **09.58.02.31** Attn: **Mike Challis** Shipping Date: **4/13/2010**
 Contact Name: **Jennifer Parker** Shipper: **Maxxam courier** Airbill Number: **NA**
 Sampled By: **Windward Environmental LLC** Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)		Comments / Instructions (sig number(s))
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)	
9/8/2009	09:50	LPR8-CSMH-Comp58	1	Tissue	X	X	
9/1/2009	14:04	LPR1-CSMH-Comp06	1	Tissue	X	X	
9/2/2009	16:33	LPR1-CSMH-Comp07	1	Tissue	X	X	
9/2/2009	12:49	LPR1-CSMH-Comp11	1	Tissue	X	X	
8/20/2009	13:03	LPR4-CSMH-Comp30	1	Tissue	X	X	
9/1/2009	12:49	LPR1-CSMH-Comp13	1	Tissue	X	X	
9/1/2009	12:09	LPR2-CSMH-Comp14	1	Tissue	X	X	
9/1/2009	11:03	LPR2-CSMH-Comp17	1	Tissue	X	X	
9/1/2009	10:02	LPR2-CSMH-Comp15	1	Tissue	X	X	
9/3/2009	12:35	LPR2-CSMH-Comp18	1	Tissue	X	X	
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # MAX09_0111			

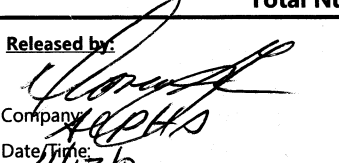
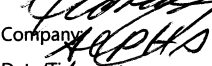
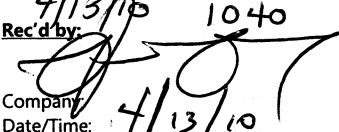
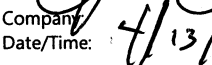
14-Apr-10 10:06
 MIKE CHALLIS

 B044251
 AKP FZ-13

WW Note: Correct collection date/time for LPR4-CSMH-Comp30 is 8/18/2009 at 11:41.



International Solid Sample Heat Treat Required

High Risk material
Controlled Storage and Disposal

1) Released by:  Company:  Date/Time: 4/13/10 1040 Rec'd by:  Company:  Date/Time: 4/13/10	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.
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200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10/04/14 10:06
Cooler temperature:	Received by: LOFIA UENYA 10 APR 14 10:06

-29.7/-29/-29.10C

2

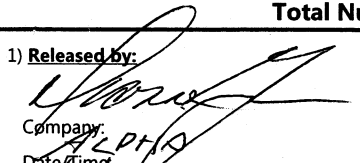
of

2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Maxxam Analytics # LPR-MA-MH-2B
 Attn: Mike Challis Shipping Date: 4/13/2010
 Shipper: Maxxam courier Airbill Number: NA
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
9/1/2009	11:32	LPR2-CSMH-Comp19	1	Tissue	X	X			
9/1/2009	11:32	LPR2-CSMH-Comp20	1	Tissue	X	X			
8/11/2009	10:08	LPR3-CSMH-Comp24	1	Tissue	X	X			
8/18/2009	07:43	LPR5-CSMH-Comp34	1	Tissue	X	X			
8/12/2009	10:29	LPR3-CSMH-Comp26	1	Tissue	X	X			
8/18/2009	10:35	LPR4-CSMH-Comp32	1	Tissue	X	X			
8/18/2009	12:01	LPR4-CSMH-Comp33	1	Tissue	X	X			
8/11/2009	07:21	LPR3-CSMH-Comp27	1	Tissue	X	X			
8/13/2009	11:52	LPR3-CSMH-Comp28	1	Tissue	X	X			
8/21/2009	13:46	LPR5-CSMH-Comp35	1	Tissue	X	X			
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by:  Company: <u>ALPHA</u> Date/Time: <u>4/13/10 1040</u> Rec'd by: Company: Date/Time:		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.	



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 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:



Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: <u>10/04/14 10:06</u>
Cooler temperature:	Received by: <u>ZOFIA ZOFIA</u>

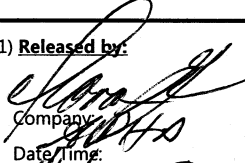

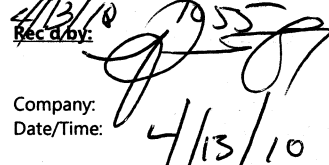

29.7-29/29
 10 APR 14 10:06

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics** # LPR-MA-MT-A
 Attn: **Mike Challis** Shipping Date: **4/13/2010**
 Shipper: **Maxxam courier** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)		Comments / Instructions or tag number(s)
					OC Pesticides (1699 Mod - NYSEDEC HRMS-2)	PAHS (CARB 429 Mod)	
8/28/2009	8:50	LPR7-CSMT-Comp52	1	Tissue	X	X	14-Apr-10 10:12 MIKE CHALLIS  B044269 AKP FZ-13  International Solid Sample Heat Treat Required High Risk material Controlled Storage and Disposal
9/1/2009	14:04	LPR1-CSMT-Comp08	1	Tissue	X	X	
9/2/2009	12:08	LPR1-CSMT-Comp10	1	Tissue	X	X	
9/3/2009	12:00	LPR1-CSMT-Comp12	1	Tissue	X	X	
9/2/2009	12:26	LPR2-CSMT-Comp16	1	Tissue	X	X	
9/17/2009	11:27	LPR6-CSMT-Comp39	1	Tissue	X	X	
9/1/2009	11:46	LPR2-CSMT-Comp22	1	Tissue	X	X	
9/1/2009	11:07	LPR2-CSMT-Comp23	1	Tissue	X	X	
8/27/2009	06:50	LPR6-CSMT-Comp40	1	Tissue	X	X	
8/12/2009	09:24	LPR3-CSMT-Comp25	1	Tissue	X	X	
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # MAX09_01LPR			

1) Released by:  Company:  Date/Time: 4/13/10 Rec'd by:  Company:  Date/Time: 4/13/10	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.
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 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #: 10APR 14 10:12
Condition upon receipt:	Time of receipt: 10/04/14 10:12
Cooler temperature:	Received by: 20574 20574

2

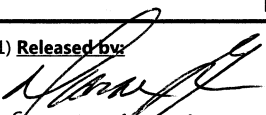
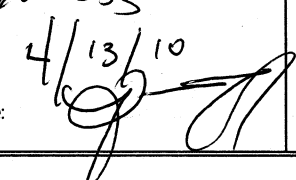
of

3

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics** # LPR-MA-MT-B
 Attn: **Mike Challis** Shipping Date: **4/13/2010**
 Shipper: **Maxxam courier** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
8/27/2009	07:17	LPR6-CSMT-Comp43	1	Tissue	X	X			
8/15/2009	7:00	LPR3-CSMT-Comp29	1	Tissue	X	X			
8/20/2009	12:20	LPR5-CSMT-Comp36	1	Tissue	X	X			
8/26/2009	11:38	LPR7-CSMT-Comp47	1	Tissue	X	X			
8/27/2009	08:55	LPR7-CSMT-Comp51	1	Tissue	X	X			
9/9/2009	08:56	LPR8-CSMT-Comp59	1	Tissue	X	X			
9/9/2009	08:47	LPR8-CSMT-Comp60	1	Tissue	X	X			
9/10/2009	13:02	LPR8-CSMT-Comp62	1	Tissue	X	X			
9/1/2009	13:10	LPR1-CSMT-Comp05	1	Tissue	X	X			
9/3/2009	11:10	LPR1-CSMT-Comp09	1	Tissue	X	X			
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by:  Company: Alpha Date/Time: 4/13/10 1055 Rec'd by:  Company: Windward Environmental LLC Date/Time: 4/13/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.	



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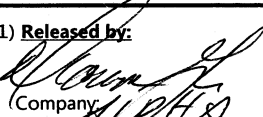
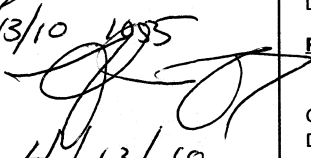
To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #: 10-12 2-1-3.2/-3.4
Condition upon receipt:	Time of receipt: 10/04/14 10:12
Cooler temperature:	Received by: ZOFIA ZERUA

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Maxxam Analytics		# LPR-MA-MT-C
Attn:	Mike Challis	Shipping Date:	4/13/2010
Shipper:	Maxxam courier	Airbill Number:	NA
Form filled out by:	Jennifer Parker/Dianne Janak	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)				
9/2/2009	14:13	LPR2-CSMT-Comp21	1	Tissue	X	X				
Total Number of Containers			1 of 21	Purchase Order / Statement of Work # MAX09_01LPR						
1) Released by:  Company: ALPHA Date/Time: 4/13/10 1055 Rec'd by:  Company: Date/Time: 4/13/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.		





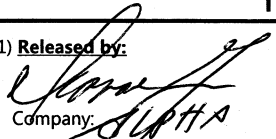
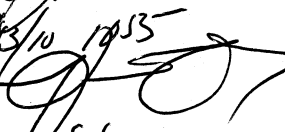
200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:	1005314	10:12
Condition upon receipt:	Time of receipt:	10/04/14	6:12 - 21/1 - 32-34°C
Cooler temperature:	Received by:	ZOEIA ZERUA	

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue To: Maxxam Analytics # LPR-MA-CT-A
 Project Number: 09.58.02.31 Attn: Mike Challis Shipping Date: 4/13/2010
 Contact Name: Jennifer Parker Shipper: Maxxam courier Airbill Number: NA
 Sampled By: Windward Environmental LLC Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)		Comments / Instructions (Iar tag number(s))	
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)		
8/20/2009	13:03	LPR4-CSCT-Comp31	1	Tissue	X	X	14-Apr-10 10:11 MIKE CHALLIS  B044293 AKP FZ-13	
9/1/2009	12:33	LPR1-CSCT-Comp01	1	Tissue	X	X		
9/2/2009	15:02	LPR1-CSCT-Comp02	1	Tissue	X	X		
9/2/2009	15:46	LPR1-CSCT-Comp03	1	Tissue	X	X		
9/2/2009	15:46	LPR1-CSCT-Comp04	1	Tissue	X	X		
9/1/2009	14:04	LPR1-CSCT-Comp06	1	Tissue	X	X		
9/2/2009	16:33	LPR1-CSCT-Comp07	1	Tissue	X	X		
9/2/2009	12:49	LPR1-CSCT-Comp11	1	Tissue	X	X		
8/18/2009	11:41	LPR4-CSCT-Comp30	1	Tissue	X	X		
9/1/2009	12:49	LPR1-CSCT-Comp13	1	Tissue	X	X		
Total Number of Containers			10 of 24	Purchase Order / Statement of Work # MAX09_01LPR			 International Solid Sample Heat Treat Required High Risk material Controlled Storage and Disposal	
1) Released by:  Company: <u>Alpha</u> Date/Time: <u>4/13/10 10:11</u> Rec'd by:  Company: <u>Windward Environmental LLC</u> Date/Time: <u>4/13/10</u>		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.



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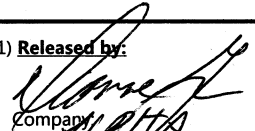
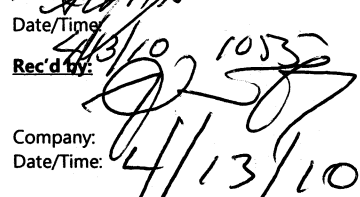
To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #: <u>10 APR 14 10:11</u>
Condition upon receipt:	Time of receipt: <u>10/04/14 10:11</u>
Cooler temperature:	Received by: <u>ZOFIA ZENITH</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics** # LPR-MA-CT-B
 Attn: **Mike Challis** Shipping Date: **4/13/2010**
 Shipper: **Maxxam courier** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
9/1/2009	12:09	LPR2-CSCT-Comp14	1	Tissue	X	X			
9/1/2009	11:03	LPR2-CSCT-Comp17	1	Tissue	X	X			
9/1/2009	10:02	LPR2-CSCT-Comp15	1	Tissue	X	X			
9/3/2009	12:35	LPR2-CSCT-Comp18	1	Tissue	X	X			
9/1/2009	11:32	LPR2-CSCT-Comp19	1	Tissue	X	X			
9/1/2009	11:32	LPR2-CSCT-Comp20	1	Tissue	X	X			
8/11/2009	10:08	LPR3-CSCT-Comp24	1	Tissue	X	X			
8/18/2009	07:43	LPR5-CSCT-Comp34	1	Tissue	X	X			
8/12/2009	10:29	LPR3-CSCT-Comp26	1	Tissue	X	X			
8/18/2009	10:35	LPR4-CSCT-Comp32	1	Tissue	X	X			
Total Number of Containers			10 of 24	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by:  Company: Maxxam Analytics Date/Time: 4/13/10 10:35 Rec'd by:  Company: Windward Environmental LLC Date/Time: 4/13/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.	



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10/04/14 10:11
Cooler temperature:	Received by: ZOFIA ZENITH 10 APR 14 10:11

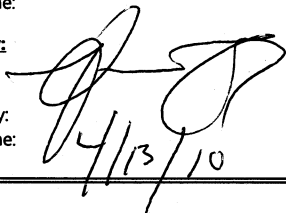
-2.1/-3.2/-3.4

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: 09.58.02.31
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Maxxam Analytics # LPR-MA-CT-C
 Attn: Mike Challis Shipping Date: 4/13/2010
 Shipper: Maxxam courier Airbill Number: NA
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
8/18/2009	12:01	LPR4-CSCT-Comp33	1	Tissue	X	X			
8/11/2009	07:21	LPR3-CSCT-Comp27	1	Tissue	X	X			
8/13/2009	11:52	LPR3-CSCT-Comp28	1	Tissue	X	X			
8/21/2009	13:46	LPR5-CSCT-Comp35	1	Tissue	X	X			
Total Number of Containers			4 of 24	Purchase Order / Statement of Work # MAX09_01LPR					

1) Released by: Company: Date/Time: Rec'd by:  Company: Date/Time:	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	4) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the composites; therefore, samples are released by Alpha Analytical.
--	--	--	--	---



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10/04/14 10:11
Cooler temperature:	Received by: ZOFIA ZERETA -2.1/-3.2/-3.4

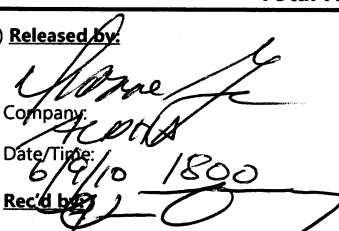
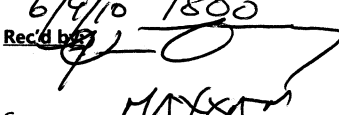
10 APR 14 10:11


1 of 2
IMMEDIATE TEST

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
Project Number: **09.58.02.31**
Contact Name: **Jennifer Parker**
Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics**
Attn: **Mike Challis**
Shipper: **Maxxam Courier**
Form filled out by: **Jennifer Parker/Dianne Janak**
COC reference # **LPR-MA-PI-A**
Shipping Date: **06/09/2010**
Airbill Number:
Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) req)			Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)		
8/25/2009	9:54	LPR6-ELFT-Ind001	1	Tissue	X	X		
9/19/2009	9:35	LPR5-MSFT-Comp01	1	Tissue	X	X		
9/8/2009	10:09	LPR8-MSFT-Ind002	1	Tissue	X	X		
9/18/2009	10:35	LPR5-MSFT-Ind009	1	Tissue	X	X		
9/18/2009	13:50	LPR4-MDFT-Comp01	1	Tissue	X	X		
9/18/2009	10:35	LPR5-MDFT-Comp02	1	Tissue	X	X		
9/10/2009	8:40	LPR8-MDFT-Comp03	1	Tissue	X	X		
8/25/2009	9:54	LPR6-ELCT-Ind001	1	Tissue	X	X		
9/19/2009	9:35	LPR5-MSCT-Comp01	1	Tissue	X	X		
9/8/2009	10:09	LPR8-MSCT-Ind002	1	Tissue	X	X		
Total Number of Containers			10	Purchase Order / Statement of Work # MAX09_01LPR				
1) Released by:  Company: Maxxam Analytics Date/Time: 6/9/10 1800 Rec'd by:  Company: Maxxam Analytics Date/Time: 6/9/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).		

11-Jun-10 09:59
MIKE CHALLIS

B075209
HSO FZ-13



**International Solid
Sample
Heat Treat Required**

High Risk material
Controlled Storage and Disposal



200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 6/9/10	Laboratory W.O. #: 10 H1A03011
Condition upon receipt: 2.9 / 3.1 2.7C	Time of receipt: 10/06/11 09:59
Cooler temperature: 2.9 / 3.1 2.7C	Received by: 10/06/11 09:59

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Maxxam Analytics	COC reference:	# LPR-MA-PI-B
Attn:	Mike Challis	Shipping Date:	06/09/2010
Shipper:	Maxxam Courier	Airbill Number:	
Form filled out by:	Jennifer Parker/Dianne Janak	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)				
9/18/2009	10:35	LPR5-MSCT-Ind009	1	Tissue	X	X				Comments / Instructions [lar tag number(s)]
9/18/2009	13:50	LPR4-MDCT-Comp01	1	Tissue	X	X				
9/18/2009	10:35	LPR5-MDCT-Comp02	1	Tissue	X	X				
9/10/2009	8:40	LPR8-MDCT-Comp03	1	Tissue	X	X				
										10 JUN 11 9:55
Total Number of Containers			4	Purchase Order / Statement of Work # MAX09_01LPR						
1) Released by: Company: Alpha Analytical Date/Time: 6/9/10 1800 Rec'd by: Company: MAXGATT Date/Time: 6/9/10		2) Released by:		3) Released by:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				



Windward
environmental LLC

200 West Mercer Street
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Tel: (206) 378-1364
Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10/06/11 09:59
Cooler temperature: 29/3.1/3.7°C	Received by: J. W. H. R. M. S. O. H. I.

1 of 1

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Maxxam Analytics	COC reference	# LPR-MA-RB3
Attn:	Mike Challis	Shipping Date:	06/09/2010
Shipper:	Maxxam Courier	Airbill Number:	
Form filled out by:	Jennifer Parker/Ellen Collins	Turnaround requested:	Standard

[illegible]

To be completed by Laboratory upon sample receipt:



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Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 1010611 09:59
Cooler temperature: 5.61 6.31 5.41	Received by: [Signature]

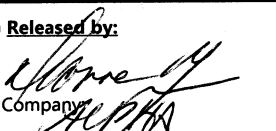
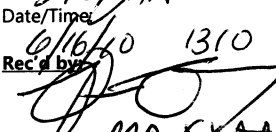
CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics**
 Attn: **Mike Challis**
 Shipper: **Maxxam courier**
 Form filled out by: **Jennifer Parker/Dianne Janak**

COC reference: **# LPR-MA-CF-A**
 Shipping Date: **06/16/2010**
 Airbill Number: **NA**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check te			
					OC Pesticides (1699 Mod - NYSDC HRMS-2)	PAHs (CARB 429 Mod)		
8/11/2009	9:25	LPR3-CCFT-Ind001	1	Tissue	X	X		
8/15/2009	8:50	LPR3-CCFT-Ind004	1	Tissue	X	X		
8/25/2009	9:54	LPR6-CCFT-Ind032	1	Tissue	X	X		
8/27/2009	9:01	LPR7-CCFT-Ind068	1	Tissue	X	X		
8/28/2009	9:32	LPR7-CCFT-Ind092	1	Tissue	X	X		
8/29/2009	8:10	LPR6-CCFT-Ind104	1	Tissue	X	X		
9/8/2009	7:48	LPR8-CCFT-Ind121	1	Tissue	X	X		
9/9/2009	9:15	LPR8-CCFT-Ind131	1	Tissue	X	X		
9/17/2009	10:49	LPR4-CCFT-Ind155	1	Tissue	X	X		
9/17/2009	11:05	LPR4-CCFT-Ind156	1	Tissue	X	X		
Total Number of Containers			10 of 12	Purchase Order / Statement of Work # MAX09_01LPR				

1) **Released by:**

 Company: **MAXXAM**
 Date/Time: **6/16/10 13:10**
Rec'd by:

 Company: **MAXXAM**
 Date/Time: **6/16/10**

2) **Released by:**
 Company:
 Date/Time:
Rec'd by:
 Company:
 Date/Time:

3) **Released by:**
 Company:
 Date/Time:
Rec'd by:
 Company:
 Date/Time:

NOTES
 Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).

10 JUN 17 9:42

17-Jun-10 09:42
 MIKE CHALLIS

 B078200
 HSO FZ-13



**International Solid
 Sample
 Heat Treat Required**

High Risk material
 Controlled Storage and Disposal



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

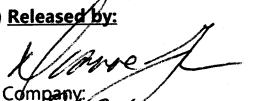
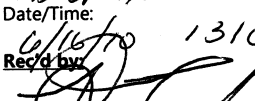
Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature: -13.1/-12.7/-12.1	Received by: ZOFIA ZENETA 10/06/17 9:42

-13.1/-12.7/-12.1 °C

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Maxxam Analytics	COC reference:	# LPR-MA-CF-B
Attn:	Mike Challis	Shipping Date:	06/16/2010
Shipper:	Maxxam courier	Airbill Number:	NA
Form filled out by:	Jennifer Parker/Dianne Janak	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions (lar tag number(s))
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)				
9/19/2009	11:00	LPR5-CCFT-Ind181	1	Tissue	X	X				
9/19/2009	11:33	LPR5-CCFT-Ind184	1	Tissue	X	X				
Total Number of Containers			2 of 12	Purchase Order / Statement of Work # MAX09_01LPR						
1) Released by:  Company: MAXXAM Date/Time: 6/16/10 1310 Rec'd by:  Company: MAXXAM Date/Time: 6/16/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp). <div style="text-align: right;">16 JUN 17 094</div>				



Windward
environmental LLC

200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature: <u>22 10/06/17</u> <u>23.1 - 22.7 - 22.1 °C</u>	Received by: <u>ZOFIA ZEMVA 10/06</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics**
 Attn: **Mike Challis**
 Shipper: **Maxxam courier**
 Form filled out by: **Jennifer Parker/Dianne Janak**

COC reference: **# LPR-MA-WB-A**
 Shipping Date: **06/16/2010**
 Airbill Number:
 Turnaround requested: **Standard**


Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) requ		
					OC Pesticides (1699 Mod - NYSDC HRMS-2)	PAHS (CARB 429 Mod)	
8/11/2009	9:25	LPR3-CCWB-Ind002	1	Tissue	X	X	
8/15/2009	8:50	LPR3-CCWB-Ind005	1	Tissue	X	X	
8/19/2009	10:03	LPR5-CCWB-Ind011	1	Tissue	X	X	
8/25/2009	7:30	LPR6-CCWB-Ind021	1	Tissue	X	X	
8/25/2009	8:43	LPR6-CCWB-Ind028	1	Tissue	X	X	
8/25/2009	11:33	LPR7-CCWB-Ind042	1	Tissue	X	X	
8/27/2009	9:01	LPR7-CCWB-Ind069	1	Tissue	X	X	
9/12/2009	7:58	LPR8-CCWB-Ind139	1	Tissue	X	X	
9/12/2009	10:57	LPR8-CCWB-Ind147	1	Tissue	X	X	
9/18/2009	10:35	LPR5-CCWB-Ind160	1	Tissue	X	X	
Total Number of Containers			10 of 18	Purchase Order / Statement of Work # MAX09_01LPR			

1) Released by: *[Signature]*
 Company: *Alpha*
 Date/Time: *6/16/10 1325*
 Rec'd by: *[Signature]*
 Company: *MAXXAM*
 Date/Time: *6/16/10*

2) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

3) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

NOTES
 Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
22 10/06/17 °C
12.3 12.9 11.9 °C
10 JUN 17 9:38

17-Jun-10 09:38
 MIKE CHALLIS

 B078232
 HSO FZ-13

 **International Solid Sample Heat Treat Required**
 High Risk material
 Controlled Storage and Disposal



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature: <i>12.3 12.9 11.9 °C</i>	Received by: <i>ZOFIA ZERUT</i>

10/06/17 9:38

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **09.58.02.31**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics**
 Attn: **Mike Challis**
 Shipper: **Maxxam courier**
 Form filled out by: **Jennifer Parker/Dianne Janak**

COC reference: **# LPR-CAS-WB-B**
 Shipping Date: **06/16/2010**
 Airbill Number:
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
9/18/2009	13:50	LPR4-CCWB-Ind175	1	Tissue	X	X			
9/19/2009	12:10	LPR4-CCWB-Ind186	1	Tissue	X	X			
8/12/2009	9:27	LPR3-ANWB-Ind001	1	Tissue	X	X			
8/28/2009	8:05	LPR6-ANWB-Ind004	1	Tissue	X	X			
9/16/2009	10:08	LPR4-ANWB-Ind007	1	Tissue	X	X			
8/28/2009	7:24	LPR6-ANWB-Ind003	1	Tissue	X	X			
8/29/2009	11:01	LPR6-ANWB-Ind005	1	Tissue	X	X			
8/29/2009	11:44	LPR7-ANWB-Ind006	1	Tissue	X	X			
Total Number of Containers			8 of 18	Purchase Order / Statement of Work # MAX09_01LPR					

1) Released by: *[Signature]*
 Company: *Alpha*
 Date/Time: *6/16/10 1325*
 Rec'd by: *[Signature]*
 Company: *MAXXAM*
 Date/Time: *6/16/10*

2) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

3) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

NOTES
 Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
22 10/06/17 C
12.3/12.9/11.9 C
10 JUN 17 9:38

To be completed by Laboratory upon sample receipt:



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature: <i>12.3/12.9/11.9 °C</i>	Received by: <i>ZOFIA ZERETA 10/06/17 9:38</i>

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Maxxam Analytics	COC reference	# LPR-MA-RB4
Attn:	Mike Challis	Shipping Date:	06/16/2010
Shipper:	Maxxam courier	Airbill Number:	NA
Form filled out by:	Jennifer Parker/Ellen Collins	Turnaround requested:	Standard

[illegible]

WindWard
environmental LLC

200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:


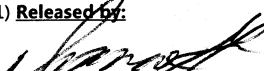
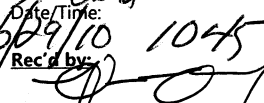
Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature: 2.8 / 2.7 / 1.9 °C	Received by: ZOFIA ZOFIA 10/06/17

1 of 1

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Maxxam Analytics	COC reference	# LPR-MA-RB5
Attn:	Mike Challis	Shipping Date:	06/29/2010
Shipper:	Maxxam courier	Airbill Number:	NA
Form filled out by:	Jennifer Parker/Ellen Collins	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod – NYSDEC HRMS-2)	PAHS (CARB 429 Mod)				
6/29/2010	10:40	LPR-062910-RB	2	Water	X	X				30-Jun-10 11:02 MIKE CHALLIS  B085535 ABH ENV-668
Total Number of Containers			2	Purchase Order / Statement of Work # MAX09_01LPR						
1) <u>Released by:</u>  Company: Date/Time: Rec'd by:  Company: MAXXAM Date/Time: 6/29/10		2) <u>Released by:</u> Company: Date/Time: <u>Rec'd by:</u> Company: Date/Time:		3) <u>Released by:</u> Company: Date/Time: <u>Rec'd by:</u> Company: Date/Time:		NOTES				

200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

WindWard
environmental LLC

To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10/06/30 11:02
Cooler temperature: 2.3 / 2.7 / 3.1 °	Received by: Zofia Zofia Zerk



Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

High Risk material
 Controlled Storage and Disposal
 Attn: **Mike Challis**
 Shipper: **Maxxam courier**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference **# LPR-MA-CATC-A**
 Shipping Date: **07/07/2010**
 Airbill Number:
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
9/12/2009	9:35	LPR8-WSCT-Ind009	1	Tissue	X	X			9-Jul-10 09:05 MIKE CHALLIS B090038 DKN FZ-13
9/12/2009	11:16	LPR8-WSCT-Ind013	1	Tissue	X	X			
9/15/2009	8:34	LPR5-WSCT-Ind019	1	Tissue	X	X			
9/18/2009	11:57	LPR5-WSCT-Ind020	1	Tissue	X	X			
9/18/2009	14:10	LPR4-WSCT-Ind023	1	Tissue	X	X			
8/18/2009	8:15	LPR5-IPCT-Ind001	1	Tissue	X	X			
8/25/2009	7:17	LPR6-IPCT-Ind003	1	Tissue	X	X			
8/26/2009	8:29	LPR6-IPCT-Ind004	1	Tissue	X	X			
8/26/2009	10:18	LPR7-IPCT-Ind005	1	Tissue	X	X			
8/27/2009	9:34	LPR7-IPCT-Ind006	1	Tissue	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by: Company: Date/Time: 7/7/10 1730 Rec'd by: Company: MAXXAM Date/Time: 7/7/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

Windward
environmental LLC

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 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt:..	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10/07/09 9:05
Cooler temperature: 110/3.7/2.6°C 111/2.1/2.2°C	Received by: ASHLEY SUKUMAR

9-Jul-10 09:05

MIKE CHALLIS

TEST REQUEST FORM

2 of 2



B090038

DKN

FZ-13

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

Shipper:

Form filled out by:

Maxxam Analytics**Mike Challis****Maxxam courier****Jennifer Parker/Dianne Janak**COC reference: **# LPR-MA-CATC-B**Shipping Date: **07/07/2010**

Airbill Number:

Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
9/9/2009	9:15	LPR8-IPCT-Ind008	1	Tissue	X	X			
9/9/2009	9:15	LPR8-IPCT-Ind009	1	Tissue	X	X			
9/10/2009	13:02	LPR8-IPCT-Ind010	1	Tissue	X	X			
9/10/2009	13:02	LPR8-IPCT-Ind011	1	Tissue	X	X			
9/10/2009	13:02	LPR8-IPCT-Ind012	1	Tissue	X	X			
9/10/2009	13:02	LPR8-IPCT-Ind013	1	Tissue	X	X			
8/11/2009	11:08	LPR3-ACCT-Ind001	1	Tissue	X	X			
8/11/2009	11:30	LPR3-ACCT-Ind002	1	Tissue	X	X			
8/13/2009	10:26	LPR3-ACCT-Ind003	1	Tissue	X	X			
8/14/2009	9:04	LPR3-ACCT-Ind005	1	Tissue	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by: Company: Maxxam Date/Time: 7/7/10 1730 Rec'd by: Company: Maxxam Date/Time: 7/7/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10/07/10 9:05
Cooler temperature: 10/3.7/2.6°C	Received by: ASHLEY SAKURAI

11/2.1/2.2°C

200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

9-Jul-10 09:05

3

of

4

MIKE CHALLIS



B090038

DKN

FZ-13

TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

Supplier:

Form filled out by:

Maxxam Analytics**Mike Challis****Maxxam courier****Jennifer Parker/Dianne Janak**COC reference: **# LPR-MA-CATC-C**Shipping Date: **07/07/2010**

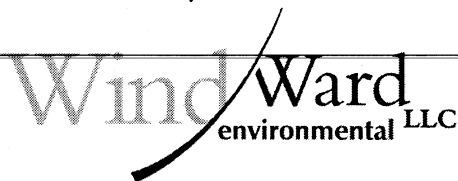
Airbill Number:

Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSEDEC HRMS-2)	PAHs (CARB 429 Mod)			
8/19/2009	10:51	LPR5-ACCT-Ind006	1	Tissue	X	X			
8/25/2009	8:25	LPR6-ACCT-Ind008	1	Tissue	X	X			
8/25/2009	8:25	LPR6-ACCT-Ind009	1	Tissue	X	X			
8/26/2009	7:55	LPR6-ACCT-Ind010	1	Tissue	X	X			
8/27/2009	7:27	LPR6-ACCT-Ind013	1	Tissue	X	X			
8/27/2009	9:48	LPR7-ACCT-Ind014	1	Tissue	X	X			
8/29/2009	11:11	LPR6-ACCT-Ind016	1	Tissue	X	X			
8/29/2009	12:06	LPR7-ACCT-Ind017	1	Tissue	X	X			
9/2/2009	14:13	LPR2-ACCT-Ind018	1	Tissue	X	X			
9/8/2009	8:04	LPR8-ACCT-Ind019	1	Tissue	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by: Company: ALPHA Date/Time: 7/7/10 1730 Rec'd by: Company: MAXXAM Date/Time: 7/7/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10/07/09 9:05
Cooler temperature: 1.0/3.2/2.6°C	Received by: ASH/DA SAKURADA



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 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

1.1/2.1/2.2°C

9-Jul-10 09:05

MIKE CHALLIS

TEST REQUEST FORM

4 of 4



B090038

DKN

FZ-13

Project/Client Name: **Passaic RI/FS Tissue**Project Number: **Task 16.1 (09.58.02.31)**Contact Name: **Jennifer Parker**Sampled By: **Windward Environmental LLC**

Shipper:

Form filled out by:

Maxxam Analytics**Mike Challis****Maxxam courier****Jennifer Parker/Dianne Janak**COC reference: **# LPR-MA-CATC-D**Shipping Date: **07/07/2010**

Airbill Number:

Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSEDEC HRMS-2)	PAHs (CARB 429 Mod)			
9/8/2009	8:44	LPR8-ACCT-Ind020	1	Tissue	X	X			
9/8/2009	8:44	LPR8-ACCT-Ind021	1	Tissue	X	X			
9/10/2009	13:02	LPR8-ACCT-Ind022	1	Tissue	X	X			
9/17/2009	11:05	LPR4-ACCT-Ind023	1	Tissue	X	X			
9/18/2009	11:15	LPR5-ACCT-Ind024	1	Tissue	X	X			
Total Number of Containers			5 of 35	Purchase Order / Statement of Work # MAX09_01LPR					

1) Released by: Company: ALPHA Date/Time: 7/7/10 1730 Rec'd by: Company: Maxxam Date/Time: 7/7/10	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10/07/09 9:05
Cooler temperature: 1.0/3.7/2.6°C	Received by: ASHA DKA SAKADADA

1.1/2.1/2.2°C

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International Solid Sample Heat Treat Required

9-Jul-10 09:05

MIKE CHALLIS



B090084

ASR

FZ-13

Reference # LPR-MA-CATF-A

Collection Date: 07/07/2010

Airbill Number:

Turnaround requested: Standard

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

High Risk material
 Controlled Storage and Disposal
 Attn:

Mike

Shipper:

Maxxam courier

Form filled out by:

Jennifer Parker/Dianne Janak

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
9/12/2009	9:35	LPR8-WSFT-Ind009	1	Tissue	X	X			
9/12/2009	11:16	LPR8-WSFT-Ind013	1	Tissue	X	X			
9/15/2009	8:34	LPR5-WSFT-Ind019	1	Tissue	X	X			
9/18/2009	11:57	LPR5-WSFT-Ind020	1	Tissue	X	X			
9/18/2009	14:10	LPR4-WSFT-Ind023	1	Tissue	X	X			
8/18/2009	8:15	LPR5-IPFT-Ind001	1	Tissue	X	X			
8/25/2009	7:17	LPR6-IPFT-Ind003	1	Tissue	X	X			
8/26/2009	8:29	LPR6-IPFT-Ind004	1	Tissue	X	X			
8/26/2009	10:18	LPR7-IPFT-Ind005	1	Tissue	X	X			
8/27/2009	9:34	LPR7-IPFT-Ind006	1	Tissue	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by: Company: MAXXAM Date/Time: 7/7/10 1730 Rec'd by: Company: MAXXAM Date/Time: 7/7/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10/02/09 9.05
Cooler temperature: 1.0/3.7/2.6°C 1.1/2.1/2.2°C	Received by: Ashelle ASHELLE SIKUMAR

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 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

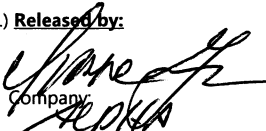
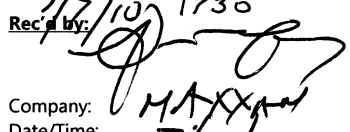
Windward
 environmental LLC

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Maxxam Analytics COC reference: # LPR-MA-CATF-B
 Attn: Mike Challis Shipping Date: 07/07/2010
 Shipper: Maxxam courier Airbill Number: _____
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]	
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)				
9/9/2009	9:15	LPR8-IPFT-Ind008	1	Tissue	X	X				
9/9/2009	9:15	LPR8-IPFT-Ind009	1	Tissue	X	X				
9/10/2009	13:02	LPR8-IPFT-Ind010	1	Tissue	X	X				
9/10/2009	13:02	LPR8-IPFT-Ind011	1	Tissue	X	X				
9/10/2009	13:02	LPR8-IPFT-Ind012	1	Tissue	X	X				
9/10/2009	13:02	LPR8-IPFT-Ind013	1	Tissue	X	X				
8/11/2009	11:08	LPR3-ACFT-Ind001	1	Tissue	X	X				
8/11/2009	11:30	LPR3-ACFT-Ind002	1	Tissue	X	X				
8/13/2009	10:26	LPR3-ACFT-Ind003	1	Tissue	X	X				
8/14/2009	9:04	LPR3-ACFT-Ind005	1	Tissue	X	X				
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # MAX09_01LPR						

1) Released by:  Company: <u>Maxxam Analytics</u> Date/Time: <u>7/7/10 1730</u> Rec'd by:  Company: <u>Windward Environmental LLC</u> Date/Time: <u>7/7/10</u>	2) Released by: Company: _____ Date/Time: _____ Rec'd by: Company: _____ Date/Time: _____	3) Released by: Company: _____ Date/Time: _____ Rec'd by: Company: _____ Date/Time: _____	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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To be completed by Laboratory upon sample receipt:

Date of receipt: _____	Laboratory W.O. #: _____
Condition upon receipt: _____	Time of receipt: <u>10/07/09 9:05</u>
Cooler temperature: <u>1.0/3.7/3.6 °C</u> <u>1.1/2.1/2.3 °C</u>	Received by: <u>ASHLEY SUGARMAN</u>



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 Fax: (206) 217-9343

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics**
 Attn: **Mike Challis**
 Shipper: **Maxxam courier**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference: **# LPR-MA-CATF-C**
 Shipping Date: **07/07/2010**
 Airbill Number:
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
8/19/2009	10:51	LPR5-ACFT-Ind006	1	Tissue	X	X			
8/25/2009	8:25	LPR6-ACFT-Ind008	1	Tissue	X	X			
8/25/2009	8:25	LPR6-ACFT-Ind009	1	Tissue	X	X			
8/26/2009	7:55	LPR6-ACFT-Ind010	1	Tissue	X	X			
8/27/2009	7:27	LPR6-ACFT-Ind013	1	Tissue	X	X			
8/27/2009	9:48	LPR7-ACFT-Ind014	1	Tissue	X	X			
8/29/2009	11:11	LPR6-ACFT-Ind016	1	Tissue	X	X			
8/29/2009	12:06	LPR7-ACFT-Ind017	1	Tissue	X	X			
9/2/2009	14:13	LPR2-ACFT-Ind018	1	Tissue	X	X			
9/8/2009	8:04	LPR8-ACFT-Ind019	1	Tissue	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # MAX09_01LPR					

1) Released by: *[Signature]*
 Company: *Alpha*
 Date/Time: *7/7/10 1730*
 Rec'd by: *[Signature]*
 Company: *Maxxam*
 Date/Time: *7/7/10*

2) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

3) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

NOTES
 Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).

To be completed by Laboratory upon sample receipt:

Date of receipt: <i>10/3/10 6:2</i>	Laboratory W.O. #:
Condition upon receipt: <i>1.0/3.7/2.6</i>	Time of receipt: <i>10/3/10 9:05</i>
Cooler temperature: <i>1.1/2.2/2.2°C</i>	Received by: <i>ASLH</i>

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 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

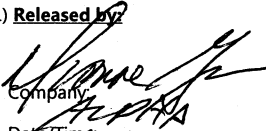
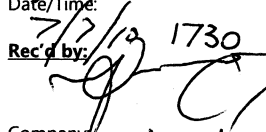


CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics** COC reference: **# LPR-MA-CATF-D**
 Attn: **Mike Challis** Shipping Date: **07/07/2010**
 Shipper: **Maxxam courier** Airbill Number:
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
9/8/2009	8:44	LPR8-ACFT-Ind020	1	Tissue	X	X			
9/8/2009	8:44	LPR8-ACFT-Ind021	1	Tissue	X	X			
9/10/2009	13:02	LPR8-ACFT-Ind022	1	Tissue	X	X			
9/17/2009	11:05	LPR4-ACFT-Ind023	1	Tissue	X	X			
9/18/2009	11:15	LPR5-ACFT-Ind024	1	Tissue	X	X			
Total Number of Containers			5 of 35	Purchase Order / Statement of Work # MAX09_01LPR					

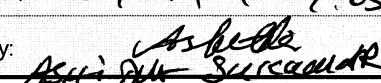
1) Released by: 
 Company: **Windward Environmental LLC**
 Date/Time: **7/7/10 1730**
 Rec'd by: 
 Company: **Maxxam Analytics**
 Date/Time: **7/7/10**

2) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

3) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

NOTES
 Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).

To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10/07/09 9:05
Cooler temperature: 1:0/3.7/2.6°C 1:1/2.1/2.2°C	Received by: 




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 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
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CHAIN-OF-CUSTODY/TEST REQUEST FORM

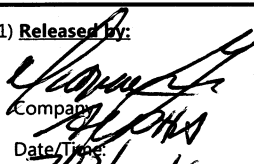
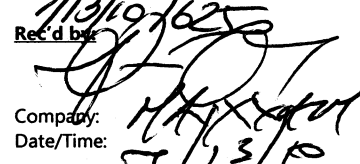
Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics** COC reference: **# LPR-MA-PERWB-A**
 Attn: **Mike Challis** Shipping Date: **07/13/2010**
 Shipper: **Maxxam courier** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod - NY/DEC HRMS-2)	PAHs (CARB 429 Mod)			
9/2/2009	15:46	LPR1-MACT-Ind145	1	Tissue	X	X			
8/11/2009	7:21	LPR3-MAWB-Comp06	1	Tissue	X	X			
8/13/2009	11:52	LPR3-MAWB-Comp09	1	Tissue	X	X			
8/13/2009	11:52	LPR3-MAWB-Comp10	1	Tissue	X	X			
8/13/2009	11:52	LPR3-MAWB-Comp11	1	Tissue	X	X			
8/13/2009	11:52	LPR3-MAWB-Comp12	1	Tissue	X	X			
8/13/2009	11:52	LPR3-MAWB-Comp30	1	Tissue	X	X			
8/25/2009	11:09	LPR7-MAWB-Ind123	1	Tissue	X	X			
8/26/2009	10:37	LPR7-MAWB-Comp25	1	Tissue	X	X			
8/27/2009	6:56	LPR6-MAWB-Ind128	1	Tissue	X	X			
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # MAX09_01LPR					

15-Jul-10 10:14
 MIKE CHALLIS

 B093245
 ABH ENV-231



International Solid Sample Heat Treat Required
 High Risk material
 Controlled Storage and Disposal

1) Released by:  Company: Date/Time: Rec'd by:  Company: Date/Time:	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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Windward
 environmental LLC

200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

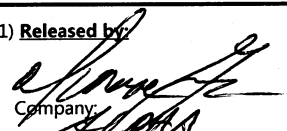
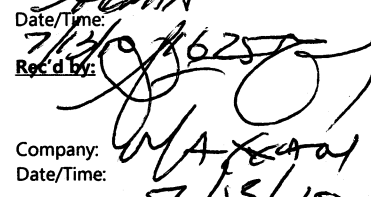
Date of receipt: 2010/07/15	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10:14
Cooler temperature: 3.1/1.8/2.9°C	Received by:  ASAD BHAIKU

CHAIN-OF-CUSTODY/TEST REQUEST FORM

13093245

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

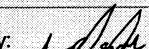
To: **Maxxam Analytics** COC reference: **# LPR-MA-PERWB-B**
 Attn: **Mike Challis** Shipping Date: **07/13/2010**
 Shipper: **Maxxam courier** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod - NYSDC HRMS-2)	PAHs (CARB 429 Mod)			
9/1/2009	12:59	LPR1-MAWB-Ind138	1	Tissue	X	X			
9/4/2009	11:25	LPR2-MAWB-Ind158	1	Tissue	X	X			
9/7/2009	13:15	LPR8-MAWB-Comp32	1	Tissue	X	X			
9/12/2009	9:35	LPR8-MAWB-Comp28	1	Tissue	X	X			
9/12/2009	9:35	LPR8-MAWB-Comp29	1	Tissue	X	X			
9/15/2009	9:23	LPR4-MAWB-Comp14	1	Tissue	X	X			
9/17/2009	9:52	LPR5-MAWB-Comp19	1	Tissue	X	X			
9/17/2009	10:04	LPR5-MAWB-Comp18	1	Tissue	X	X			
9/18/2009	11:57	LPR5-MAWB-Comp23	1	Tissue	X	X			
9/18/2009	13:19	LPR4-MAWB-Comp15	1	Tissue	X	X			
Total Number of Containers			10 of 20	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by:  Company: Maxxam Analytics Date/Time: 7/13/10 1625 Rec'd by:  Company: Windward Environmental LLC Date/Time: 7/13/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

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 Fax: (206) 217-9343

Windward
 environmental LLC

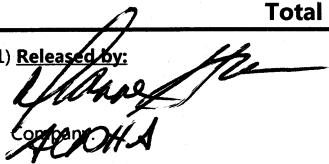
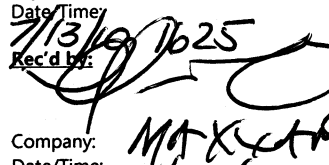
To be completed by Laboratory upon sample receipt:

Date of receipt: 2010/07/15	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10:14
Cooler temperature: 3.1/1.8/2.9	Received by:  ASAD BHADU

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Maxxam Analytics
 Attn: Mike Challis
 Shipper: Maxxam courier
 Form filled out by: Jennifer Parker/Dianne Janak
 COC reference: # LPR-MA-PERF-A
 Shipping Date: 07/13/2010
 Airbill Number: NA
 Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
8/11/2009	9:56	LPR3-MAFT-Comp02	1	Tissue	X	X			
8/11/2009	10:08	LPR3-MAFT-Comp03	1	Tissue	X	X			
8/12/2009	9:24	LPR3-MAFT-Comp04	1	Tissue	X	X			
8/13/2009	10:00	LPR3-MAFT-Comp05	1	Tissue	X	X			
8/13/2009	11:52	LPR3-MAFT-Comp07	1	Tissue	X	X			
8/13/2009	11:52	LPR3-MAFT-Comp08	1	Tissue	X	X			
8/14/2009	8:44	LPR3-MAFT-Comp13	1	Tissue	X	X			
8/25/2009	7:30	LPR6-MAFT-Comp24	1	Tissue	X	X			
8/25/2009	9:54	LPR6-MAFT-Ind122	1	Tissue	X	X			
9/1/2009	13:10	LPR1-MAFT-Comp01	1	Tissue	X	X			
Total Number of Containers			10 of 35	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by:  Company: <u>MAXXAM</u> Date/Time: <u>7/13/10 1625</u> Rec'd by:  Company: <u>MAXXAM</u> Date/Time: <u>7/13/10</u>		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

15-Jul-10 10:14
 MIKE CHALLIS

 B093261
 ABH ENV-231



**International Solid
Sample
Heat Treat Required**

High Risk material
Controlled Storage and Disposal

Windward
environmental LLC

200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: <u>2010/07/15</u>	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: <u>10:14</u>
Cooler temperature: <u>3.1/1.8/2.9°C</u>	Received by: <u>ASAD BHADANI</u>

2 of 2

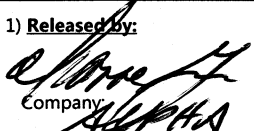
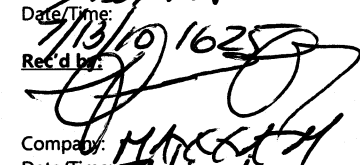
CHAIN-OF-CUSTODY/TEST REQUEST FORM

B093261

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics**
 Attn: **Mike Challis**
 Shipper: **Maxxam courier**
 Form filled out by: **Jennifer Parker/Dianne Janak**

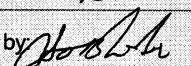
COC reference: **# LPR-MA-PERF-B**
 Shipping Date: **07/13/2010**
 Airbill Number: **NA**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
9/10/2009	8:38	LPR8-MAFT-Comp26	1	Tissue	X	X			
9/10/2009	9:30	LPR8-MAFT-Comp31	1	Tissue	X	X			
9/12/2009	9:35	LPR8-MAFT-Comp27	1	Tissue	X	X			
9/18/2009	10:35	LPR5-MAFT-Comp20	1	Tissue	X	X			
9/18/2009	10:35	LPR5-MAFT-Comp21	1	Tissue	X	X			
9/18/2009	11:57	LPR5-MAFT-Comp22	1	Tissue	X	X			
9/18/2009	13:50	LPR4-MAFT-Comp16	1	Tissue	X	X			
9/18/2009	14:10	LPR4-MAFT-Comp17	1	Tissue	X	X			
9/2/2009	15:46	LPR1-MAFT-Ind145	1	Tissue	X	X			
Total Number of Containers			9 of 19	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by:  Company: Maxxam Analytics Date/Time: 7/13/10 1625 Rec'd by:  Company: Windward Environmental LLC Date/Time: 7/15/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 2010/07/15	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10:14
Cooler temperature: 3.1/1.8/2.9°C	Received by:  ASAD BHAI DU

CHAIN-OF-CUSTODY/TEST REQUEST FORM

To:	Maxxam Analytics	COC reference	# LPR-MA-RB6
Attn:	Mike Challis	Shipping Date:	07/13/2010
Shipper:	Maxxam courier	Airbill Number:	NA
Form filled out by:	Jennifer Parker/Ellen Collins	Turnaround requested:	Standard

[illegible]

Date of receipt: 2010/07/15	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 10:07
Cooler temperature: 2.3/2.7/1.8°C	Received by: ASAD BHAIDU

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics**
 Attn: **Mike Challis**
 Shipper: **Maxxam courier**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference: **# LPR-MA-EELF-A**
 Shipping Date: **07/19/2010**
 Airbill Number: **NA**
 Turnaround requested: **Standard**


Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [Jar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHS (CARB 429 Mod)			
8/11/2009	8:00	LPR3-ARFT-Comp20	1	Tissue	X	X			
8/11/2009	8:50	LPR3-ARFT-Comp06	1	Tissue	X	X			
8/11/2009	9:13	LPR3-ARFT-Ind005	1	Tissue	X	X			
8/11/2009	11:08	LPR3-ARFT-Comp05	1	Tissue	X	X			
8/12/2009	9:00	LPR3-ARFT-Ind010	1	Tissue	X	X			
8/12/2009	12:28	LPR3-ARFT-Ind014	1	Tissue	X	X			
8/18/2009	8:05	LPR5-ARFT-Comp09	1	Tissue	X	X			
8/18/2009	8:15	LPR5-ARFT-Ind021	1	Tissue	X	X			
8/18/2009	8:42	LPR4-ARFT-Ind022	1	Tissue	X	X			
8/18/2009	12:30	LPR4-ARFT-Ind026	1	Tissue	X	X			
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # MAX09_01LPR R					

1) Released by: *[Signature]*
 Company: **ALPHA**
 Date/Time: **7/19/10 1635**
 Rec'd by: *[Signature]*
 Company: **MAXXAM**
 Date/Time: **7/19/10**

2) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

3) Released by:
 Company:
 Date/Time:
 Rec'd by:
 Company:
 Date/Time:

NOTES
 Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).

21-Jul-10 11:40
 MIKE CHALLIS

 B096590
 ABH FZ-13



**International Solid
 Sample
 Heat Treat Required**

**High Risk material
 Controlled Storage and Disposal**



200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

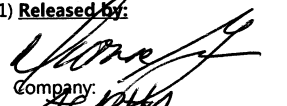
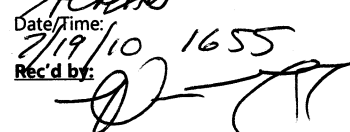
To be completed by Laboratory upon sample receipt:

Date of receipt: 2010/07/21	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 11:40
Cooler temperature: 6.4 7.8 8.1 °C	Received by: <i>[Signature]</i> ASAD BMAI

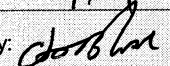
CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics** COC reference: **# LPR-MA-EELF-B**
 Attn: **Mike Challis** Shipping Date: **07/19/2010**
 Shipper: **Maxxam courier** Airbill Number: **NA**
 Form filled out by: **Jennifer Parker/Dianne Janak** Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
8/19/2009	10:43	LPR5-ARFT-Comp12	1	Tissue	X	X			
8/19/2009	10:51	LPR5-ARFT-Ind030	1	Tissue	X	X			
8/19/2009	12:44	LPR4-ARFT-Comp07	1	Tissue	X	X			
8/19/2009	12:44	LPR4-ARFT-Ind034	1	Tissue	X	X			
8/20/2009	11:59	LPR5-ARFT-Comp10	1	Tissue	X	X			
8/20/2009	12:25	LPR5-ARFT-Ind040	1	Tissue	X	X			
8/20/2009	13:39	LPR4-ARFT-Comp08	1	Tissue	X	X			
8/20/2009	14:42	LPR4-ARFT-Ind044	1	Tissue	X	X			
8/21/2009	11:56	LPR5-ARFT-Ind049	1	Tissue	X	X			
8/21/2009	12:09	LPR5-ARFT-Ind048	1	Tissue	X	X			
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by:  Company: MAXXAM Date/Time: 7/19/10 1655 Rec'd by:  Company: MAXXAM Date/Time: 7/19/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

To be completed by Laboratory upon sample receipt:

Date of receipt: 2010/07/21	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 11:40
Cooler temperature: 6.4/7.8/8.1°C	Received by:  ASAD BHARADWAJ

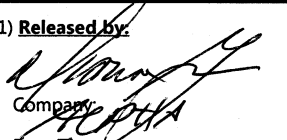
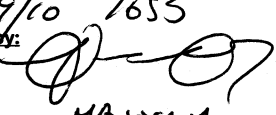


200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

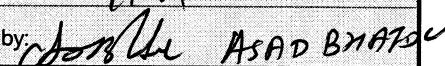
To: **Maxxam Analytics**
 Attn: **Mike Challis**
 Shipper: **Maxxam courier**
 Form filled out by: **Jennifer Parker/Dianne Janak**
 COC reference: **# LPR-MA-EELF-C**
 Shipping Date: **07/19/2010**
 Airbill Number: **NA**
 Turnaround requested: **Standard**

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod - NYSDDEC HRMS-2)	PAHs (CARB 429 Mod)			
8/25/2009	9:25	LPR6-ARFT-Ind065	1	Tissue	X	X			
8/27/2009	11:08	LPR7-ARFT-Ind071	1	Tissue	X	X			
8/29/2009	8:27	LPR6-ARFT-Ind073	1	Tissue	X	X			
9/1/2009	12:55	LPR1-ARFT-Comp01	1	Tissue	X	X			
9/2/2009	15:29	LPR1-ARFT-Comp02	1	Tissue	X	X			
9/5/2009	15:15	LPR5-ARFT-Ind086	1	Tissue	X	X			
9/8/2009	12:32	LPR8-ARFT-Comp17	1	Tissue	X	X			
9/8/2009	13:15	LPR8-ARFT-Comp21	1	Tissue	X	X			
9/8/2009	13:15	LPR8-ARFT-Comp22	1	Tissue	X	X			
9/9/2009	8:25	LPR8-ARFT-Comp14	1	Tissue	X	X			
Total Number of Containers			10 of 32	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by:  Company: MAXXAM Date/Time: 7/19/10 1655 Rec'd by:  Company: WINDWARD Date/Time: 7/19/10		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			



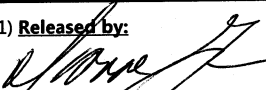
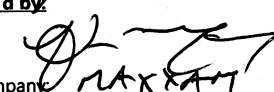
200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 2010/07/21	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 11:40
Cooler temperature: 6.4/7.8/8.1°	Received by:  ASAD BHATIA

CHAIN-OF-CUSTODY/TEST REQUEST FORM

To:	Maxxam Analytics	COC reference:	# LPR-AP-MALF-D
Attn:	Mike Challis	Shipping Date:	07/19/2010
Shipper:	Maxxam courier	Airbill Number:	NA
Form filled out by:	Jennifer Parker/Dianne Janak	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod – NYSDEC HRMS-2)	PAHs (CARB 429 Mod)				
9/2/2009	14:59	LPR2-ARFT-Comp04	1	Tissue	X	X				
9/5/2009	12:03	LPR1-ARFT-Ind085	1	Tissue	X	X				
Total Number of Containers			2 of 32	Purchase Order / Statement of Work # MAX09_01LPR						
1) Released by:  Company: Date/Time: <u>7/19/10 1655</u> Rec'd by:  Company: Date/Time: <u>7/19/10</u>		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).				

200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt: 2010/07/21	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 11:40
Cooler temperature: 6.4/7.8/8.1°C	Received by: <i>ASAD BROAD</i>


CHAIN-OF-CUSTODY/TEST REQUEST FORM


Project/Client Name: **Passaic RI/FS Tissue**
 Project Number: **Task 16.1 (09.58.02.31)**
 Contact Name: **Jennifer Parker**
 Sampled By: **Windward Environmental LLC**

To: **Maxxam Analytics**
 Attn: **Mike Challis**
 Shipper: **Maxxam courier**
 Form filled out by: **Jennifer Parker/Dianne Janak**

COC reference # **LPR-MA-EELWB-A**
 Shipping Date: **07/19/2010**
 Airbill Number: **NA**
 Turnaround requested: **Standard**

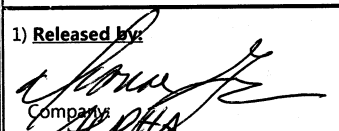
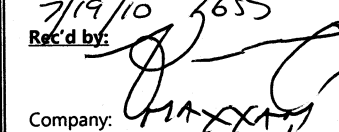
Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / instructions (lar tag number(s))
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
9/2/2009	14:59	LPR2-ARCT-Comp04	1	Tissue	X	X			
9/5/2009	12:03	LPR1-ARCT-Ind085	1	Tissue	X	X			
8/11/2009	7:46	LPR3-ARWB-Ind001	1	Tissue	X	X			
8/11/2009	11:30	LPR3-ARWB-Ind009	1	Tissue	X	X			
8/12/2009	11:36	LPR3-ARWB-Ind012	1	Tissue	X	X			
8/18/2009	11:28	LPR4-ARWB-Ind024	1	Tissue	X	X			
8/18/2009	12:39	LPR4-ARWB-Ind025	1	Tissue	X	X			
8/20/2009	12:30	LPR5-ARWB-Ind039	1	Tissue	X	X			
8/20/2009	14:42	LPR4-ARWB-Ind043	1	Tissue	X	X			
8/21/2009	11:50	LPR5-ARWB-Comp11	1	Tissue	X	X			
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # MAX09_01LPR R					

21-Jul-10 11:40
 MIKE CHALLIS

 B096602
 ABH FZ-13



International Solid Sample Heat Treat Required

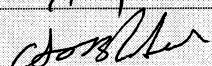
High Risk material
Controlled Storage and Disposal

1) Released by:  Company: Alpha Date/Time: 7/19/10 5:55 Rec'd by:  Company: Maxxam Date/Time: 7/19/10	2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:	NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).
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To be completed by Laboratory upon sample receipt:



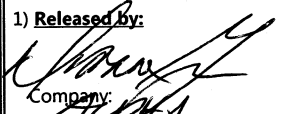

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 Suite 401
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 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt: 2010/07/21	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: 11:40
Cooler temperature: 6.4/7.8/8.1°C	Received by: 

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name: Passaic RI/FS Tissue
 Project Number: Task 16.1 (09.58.02.31)
 Contact Name: Jennifer Parker
 Sampled By: Windward Environmental LLC

To: Maxxam Analytics COC reference: # LPR-MA-EELWB-B
 Attn: Mike Challis Shipping Date: 07/19/2010
 Shipper: Maxxam courier Airbill Number: NA
 Form filled out by: Jennifer Parker/Dianne Janak Turnaround requested: Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)				Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)			
8/22/2009	8:17	LPR4-ARWB-Ind060	1	Tissue	X	X			
8/22/2009	9:22	LPR5-ARWB-Ind062	1	Tissue	X	X			
8/27/2009	8:08	LPR7-ARWB-Ind070	1	Tissue	X	X			
8/27/2009	8:47	LPR6-ARWB-Ind069	1	Tissue	X	X			
8/29/2009	10:49	LPR6-ARWB-Ind074	1	Tissue	X	X			
9/3/2009	12:37	LPR1-ARWB-Comp03	1	Tissue	X	X			
9/7/2009	14:00	LPR8-ARWB-Comp16	1	Tissue	X	X			
9/8/2009	10:30	LPR8-ARWB-Comp15	1	Tissue	X	X			
9/8/2009	12:32	LPR8-ARWB-Comp18	1	Tissue	X	X			
9/9/2009	7:49	LPR8-ARWB-Comp13	1	Tissue	X	X			
Total Number of Containers			10 of 21	Purchase Order / Statement of Work # MAX09_01LPR					
1) Released by:  Company: <u>MAXXAM</u> Date/Time: <u>7/19/10 16:55</u> Rec'd by:  Company: <u>WINDWARD</u> Date/Time: <u>7/19/10</u>		2) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		3) Released by: Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES Individual specimens were collected by Windward Environmental. The collection date and time corresponds to the earliest collected individual specimen within the composite. Specimens were grouped together into composites by Windward onsite at Alpha Analytical. Alpha Analytical processed and homogenized the individuals and composites; therefore, samples are released by Alpha Analytical. Sample names indicate whether the sample is an individual (Ind) or composite (Comp).			

To be completed by Laboratory upon sample receipt:

Windward
 environmental LLC
 200 West Mercer Street
 Suite 401
 Seattle, WA 98119
 Tel: (206) 378-1364
 Fax: (206) 217-9343

Date of receipt: <u>2010/07/21</u>	Laboratory W.O. #:
Condition upon receipt:	Time of receipt: <u>11:40</u>
Cooler temperature: <u>6.4/78/8.1°C</u>	Received by: <u>ASAP BROOKS</u>

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	Task 16.1 (09.58.02.31)
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Maxxam Analytics	COC reference:	# LPR-MA-EELWB-C
Attn:	Mike Challis	Shipping Date:	07/19/2010
Shipper:	Maxxam courier	Airbill Number:	NA
Form filled out by:	Jennifer Parker/Dianne Janak	Turnaround requested:	Standard

[illegible]

Windward
environmental LLC

200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

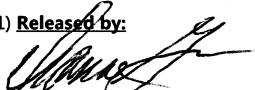
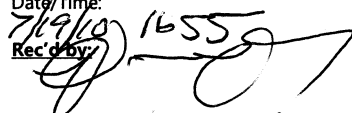
To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt: 2010/07/21	Time of receipt: 11:40
Cooler temperature: 6.4/7.8/8.1°C	Received by: [Signature] ASD BROS

1 of 1

Project/Client Name:	Passaic RI/FS Tissue
Project Number:	09.58.02.31 (Task 16.1)
Contact Name:	Jennifer Parker
Sampled By:	Windward Environmental LLC

To:	Maxxam Analytics	COC reference	# LPR-MA-RB7
Attn:	Mike Challis	Shipping Date:	07/19/2010
Shipper:	Maxxam courier	Airbill Number:	NA
Form filled out by:	Jennifer Parker/Ellen Collins	Turnaround requested:	Standard

Sample Collection Date (m/d/y)	Time	Sample Identification	# of Containers	Matrix	Test(s) Requested (check test(s) required)					Comments / Instructions [lar tag number(s)]
					OC Pesticides (1699 Mod - NYSDEC HRMS-2)	PAHs (CARB 429 Mod)				
7/19/2010	12:30	LPR-071910-RB	2	Water	X	X				
Total Number of Containers			2	Purchase Order / Statement of Work # MAX09_01LPR						
1) <u>Released by:</u>  Company: Date/Time: Rec'd by:  Company: 1175 X 111 Date/Time: 7/19/10		2) <u>Released by:</u> Company: Date/Time: Rec'd by: Company: Date/Time:		3) <u>Released by:</u> Company: Date/Time: Rec'd by: Company: Date/Time:		NOTES				

To be completed by Laboratory upon sample receipt:



200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

Date of receipt: 2010/07/21	Laboratory W.O. #: 11:58
Condition upon receipt:	Time of receipt: 11:58
Cooler temperature: 6.7/6.2/7.3 °C	Received by: Z Zentia Zofia Zentia

APPENDIX D. SAMPLES AND ANALYSES BY ANALYTICAL LABORATORY AND SAMPLE DELIVERY GROUP

2009 Fish and Blue Crab Tissue Chemistry Data for the LPRSA

Appendix D

Table D-1. 2009 SDGs, sample IDs, and analyses - Alpha Analytical

FINAL

Species	Tissue Type	LPR ID
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp37
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp38
Blue Crab	Muscle/hepatopancreas	LPR4-CSMH-Comp31
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp41
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp42
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp44
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp45
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp46
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp49
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp53
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp61
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp48
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp54
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp50
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp55
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp56
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp57
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp01
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp02
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp03
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp04
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp58
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp06
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp07
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp11
Blue Crab	Muscle/hepatopancreas	LPR4-CSMH-Comp30
Rinsate Blank		LPR-032310-RB
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp13
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp14
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp17
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp15
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp18
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp19
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp20
Blue Crab	Muscle/hepatopancreas	LPR3-CSMH-Comp24
Blue Crab	Muscle/hepatopancreas	LPR5-CSMH-Comp34
Blue Crab	Muscle/hepatopancreas	LPR3-CSMH-Comp26
Blue Crab	Muscle/hepatopancreas	LPR4-CSMH-Comp32
Blue Crab	Muscle/hepatopancreas	LPR4-CSMH-Comp33
Blue Crab	Muscle/hepatopancreas	LPR3-CSMH-Comp27

Blue Crab	Muscle/hepatopancreas	LPR3-CSMH-Comp28
Blue Crab	Muscle/hepatopancreas	LPR5-CSMH-Comp35
Rinsate Blank		LPR-041210-RB
Blue Crab	Carcass	LPR4-CSCT-Comp31
Blue Crab	Carcass	LPR1-CSCT-Comp01
Blue Crab	Carcass	LPR1-CSCT-Comp02
Blue Crab	Carcass	LPR1-CSCT-Comp03
Blue Crab	Carcass	LPR1-CSCT-Comp04
Blue Crab	Carcass	LPR1-CSCT-Comp06
Blue Crab	Carcass	LPR1-CSCT-Comp07
Blue Crab	Carcass	LPR1-CSCT-Comp11
Blue Crab	Carcass	LPR4-CSCT-Comp30
Blue Crab	Carcass	LPR1-CSCT-Comp13
Blue Crab	Carcass	LPR2-CSCT-Comp14
Blue Crab	Carcass	LPR2-CSCT-Comp17
Blue Crab	Carcass	LPR2-CSCT-Comp15
Blue Crab	Carcass	LPR2-CSCT-Comp18
Blue Crab	Carcass	LPR2-CSCT-Comp19
Blue Crab	Carcass	LPR2-CSCT-Comp20
Blue Crab	Carcass	LPR3-CSCT-Comp24
Blue Crab	Carcass	LPR5-CSCT-Comp34
Blue Crab	Carcass	LPR3-CSCT-Comp26
Blue Crab	Carcass	LPR4-CSCT-Comp32
Blue Crab	Carcass	LPR4-CSCT-Comp33
Blue Crab	Carcass	LPR3-CSCT-Comp27
Blue Crab	Carcass	LPR3-CSCT-Comp28
Blue Crab	Carcass	LPR5-CSCT-Comp35
Blue Crab	Muscle only	LPR7-CSMT-Comp52
Blue Crab	Muscle only	LPR1-CSMT-Comp08
Blue Crab	Muscle only	LPR1-CSMT-Comp10
Blue Crab	Muscle only	LPR1-CSMT-Comp12
Blue Crab	Muscle only	LPR2-CSMT-Comp16
Blue Crab	Muscle only	LPR6-CSMT-Comp39
Blue Crab	Muscle only	LPR2-CSMT-Comp22
Blue Crab	Muscle only	LPR2-CSMT-Comp23
Blue Crab	Muscle only	LPR6-CSMT-Comp40
Blue Crab	Muscle only	LPR3-CSMT-Comp25
Blue Crab	Muscle only	LPR6-CSMT-Comp43
Blue Crab	Muscle only	LPR3-CSMT-Comp29
Blue Crab	Muscle only	LPR5-CSMT-Comp36
Blue Crab	Muscle only	LPR7-CSMT-Comp47
Blue Crab	Muscle only	LPR7-CSMT-Comp51
Blue Crab	Muscle only	LPR8-CSMT-Comp59
Blue Crab	Muscle only	LPR8-CSMT-Comp60
Blue Crab	Muscle only	LPR8-CSMT-Comp62
Blue Crab	Muscle only	LPR1-CSMT-Comp05
Blue Crab	Muscle only	LPR1-CSMT-Comp09

Blue Crab	Muscle only	LPR2-CSMT-Comp21
Blue Crab	Hepatopancreas only	LPR1-CSHT-Comp05
Blue Crab	Hepatopancreas only	LPR2-CSHT-Comp63
Blue Crab	Hepatopancreas only	LPR1-CSHT-Comp09
Blue Crab	Hepatopancreas only	LPR3-CSHT-Comp64
Blue Crab	Hepatopancreas only	LPR2-CSHT-Comp21
Blue Crab	Hepatopancreas only	LPRX-CSHT-Comp65
Blue Crab	Hepatopancreas only	LPR8-CSHT-Comp66
Northern pike	Fillet (with skin)	LPR6-ELFT-Ind001
Largemouth bass	Fillet (with skin)	LPR5-MSFT-Comp01
Largemouth bass	Fillet (with skin)	LPR8-MSFT-Ind002
Largemouth bass	Fillet (with skin)	LPR5-MSFT-Ind009
Smallmouth bass	Fillet (with skin)	LPR4-MDFT-Comp01
Smallmouth bass	Fillet (with skin)	LPR5-MDFT-Comp02
Smallmouth bass	Fillet (with skin)	LPR8-MDFT-Comp03
Northern pike	Carcass	LPR6-ELCT-Ind001
Largemouth bass	Carcass	LPR5-MSCT-Comp01
Largemouth bass	Carcass	LPR8-MSCT-Ind002
Largemouth bass	Carcass	LPR5-MSCT-Ind009
Smallmouth bass	Carcass	LPR4-MDCT-Comp01
Smallmouth bass	Carcass	LPR5-MDCT-Comp02
Smallmouth bass	Carcass	LPR8-MDCT-Comp03
Rinsate Blank		LPR-060810-RB
Carp	Whole body	LPR3-CCWB-Ind002
Carp	Whole body	LPR3-CCWB-Ind005
Carp	Whole body	LPR5-CCWB-Ind011
Carp	Whole body	LPR6-CCWB-Ind021
Carp	Whole body	LPR6-CCWB-Ind028
Carp	Whole body	LPR7-CCWB-Ind042
Carp	Whole body	LPR7-CCWB-Ind069
Carp	Whole body	LPR8-CCWB-Ind139
Carp	Whole body	LPR8-CCWB-Ind147
Carp	Whole body	LPR5-CCWB-Ind160
Carp	Whole body	LPR4-CCWB-Ind175
Carp	Whole body	LPR4-CCWB-Ind186
Brown Bullhead	Whole body	LPR3-ANWB-Ind001
Brown Bullhead	Whole body	LPR6-ANWB-Ind004
Brown Bullhead	Whole body	LPR4-ANWB-Ind007
Brown Bullhead	Whole body	LPR6-ANWB-Ind003
Brown Bullhead	Whole body	LPR6-ANWB-Ind005
Brown Bullhead	Whole body	LPR7-ANWB-Ind006
Rinsate Blank		LPR-062910-RB
Carp	Fillet (with skin)	LPR3-CCFT-Ind001
Carp	Fillet (with skin)	LPR3-CCFT-Ind004
Carp	Fillet (with skin)	LPR6-CCFT-Ind032

Carp	Fillet (with skin)	LPR7-CCFT-Ind068
Carp	Fillet (with skin)	LPR7-CCFT-Ind092
Carp	Fillet (with skin)	LPR6-CCFT-Ind104
Carp	Fillet (with skin)	LPR8-CCFT-Ind121
Carp	Fillet (with skin)	LPR8-CCFT-Ind131
Carp	Fillet (with skin)	LPR4-CCFT-Ind155
Carp	Fillet (with skin)	LPR4-CCFT-Ind156
Carp	Fillet (with skin)	LPR5-CCFT-Ind181
Carp	Fillet (with skin)	LPR5-CCFT-Ind184
Rinsate Blank		LPR-061510-RB
White sucker	Fillet (with skin)	LPR8-WSFT-Ind009
White sucker	Fillet (with skin)	LPR8-WSFT-Ind013
White sucker	Fillet (with skin)	LPR5-WSFT-Ind019
White sucker	Fillet (with skin)	LPR5-WSFT-Ind020
White sucker	Fillet (with skin)	LPR4-WSFT-Ind023
Channel catfish	Fillet (skinless)	LPR5-IPFT-Ind001
Channel catfish	Fillet (skinless)	LPR6-IPFT-Ind003
Channel catfish	Fillet (skinless)	LPR6-IPFT-Ind004
Channel catfish	Fillet (skinless)	LPR7-IPFT-Ind005
Channel catfish	Fillet (skinless)	LPR7-IPFT-Ind006
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind008
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind009
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind010
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind011
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind012
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind013
White catfish	Fillet (skinless)	LPR3-ACFT-Ind001
White catfish	Fillet (skinless)	LPR3-ACFT-Ind002
White catfish	Fillet (skinless)	LPR3-ACFT-Ind003
White catfish	Fillet (skinless)	LPR3-ACFT-Ind005
White catfish	Fillet (skinless)	LPR5-ACFT-Ind006
White catfish	Fillet (skinless)	LPR6-ACFT-Ind008
White catfish	Fillet (skinless)	LPR6-ACFT-Ind009
White catfish	Fillet (skinless)	LPR6-ACFT-Ind010
White catfish	Fillet (skinless)	LPR6-ACFT-Ind013
White catfish	Fillet (skinless)	LPR7-ACFT-Ind014
White catfish	Fillet (skinless)	LPR6-ACFT-Ind016
White catfish	Fillet (skinless)	LPR7-ACFT-Ind017
White catfish	Fillet (skinless)	LPR2-ACFT-Ind018
White catfish	Fillet (skinless)	LPR8-ACFT-Ind019
White catfish	Fillet (skinless)	LPR8-ACFT-Ind020
White catfish	Fillet (skinless)	LPR8-ACFT-Ind021
White catfish	Fillet (skinless)	LPR8-ACFT-Ind022
White catfish	Fillet (skinless)	LPR4-ACFT-Ind023
White catfish	Fillet (skinless)	LPR5-ACFT-Ind024
White sucker	Carcass	LPR8-WSCT-Ind009
White sucker	Carcass	LPR8-WSCT-Ind013

White sucker	Carcass	LPR5-WSCT-Ind019
White sucker	Carcass	LPR5-WSCT-Ind020
White sucker	Carcass	LPR4-WSCT-Ind023
Channel catfish	Carcass	LPR5-IPCT-Ind001
Channel catfish	Carcass	LPR6-IPCT-Ind003
Channel catfish	Carcass	LPR6-IPCT-Ind004
Channel catfish	Carcass	LPR7-IPCT-Ind005
Channel catfish	Carcass	LPR7-IPCT-Ind006
Channel catfish	Carcass	LPR8-IPCT-Ind008
Channel catfish	Carcass	LPR8-IPCT-Ind009
Channel catfish	Carcass	LPR8-IPCT-Ind010
Channel catfish	Carcass	LPR8-IPCT-Ind011
Channel catfish	Carcass	LPR8-IPCT-Ind012
Channel catfish	Carcass	LPR8-IPCT-Ind013
White catfish	Carcass	LPR3-ACCT-Ind001
White catfish	Carcass	LPR3-ACCT-Ind002
White catfish	Carcass	LPR3-ACCT-Ind003
White catfish	Carcass	LPR3-ACCT-Ind005
White catfish	Carcass	LPR5-ACCT-Ind006
White catfish	Carcass	LPR6-ACCT-Ind008
White catfish	Carcass	LPR6-ACCT-Ind009
White catfish	Carcass	LPR6-ACCT-Ind010
White catfish	Carcass	LPR6-ACCT-Ind013
White catfish	Carcass	LPR7-ACCT-Ind014
White catfish	Carcass	LPR6-ACCT-Ind016
White catfish	Carcass	LPR7-ACCT-Ind017
White catfish	Carcass	LPR2-ACCT-Ind018
White catfish	Carcass	LPR8-ACCT-Ind019
White catfish	Carcass	LPR8-ACCT-Ind020
White catfish	Carcass	LPR8-ACCT-Ind021
White catfish	Carcass	LPR8-ACCT-Ind022
White catfish	Carcass	LPR4-ACCT-Ind023
White catfish	Carcass	LPR5-ACCT-Ind024
White perch	Carcass	LPR1-MACT-Ind145
White perch	Whole body	LPR3-MAWB-Comp06
White perch	Whole body	LPR3-MAWB-Comp09
White perch	Whole body	LPR3-MAWB-Comp10
White perch	Whole body	LPR3-MAWB-Comp11
White perch	Whole body	LPR3-MAWB-Comp12
White perch	Whole body	LPR3-MAWB-Comp30
White perch	Whole body	LPR7-MAWB-Ind123
White perch	Whole body	LPR7-MAWB-Comp25
White perch	Whole body	LPR6-MAWB-Ind128
White perch	Whole body	LPR1-MAWB-Ind138
White perch	Whole body	LPR2-MAWB-Ind158
White perch	Whole body	LPR8-MAWB-Comp32
White perch	Whole body	LPR8-MAWB-Comp28
White perch	Whole body	LPR8-MAWB-Comp29

White perch	Whole body	LPR4-MAWB-Comp14
White perch	Whole body	LPR5-MAWB-Comp19
White perch	Whole body	LPR5-MAWB-Comp18
White perch	Whole body	LPR5-MAWB-Comp23
White perch	Whole body	LPR4-MAWB-Comp15
Rinsate Blank		LPR-071310-RB
White perch	Fillet (with skin)	LPR3-MAFT-Comp02
White perch	Fillet (with skin)	LPR3-MAFT-Comp03
White perch	Fillet (with skin)	LPR3-MAFT-Comp04
White perch	Fillet (with skin)	LPR3-MAFT-Comp05
White perch	Fillet (with skin)	LPR3-MAFT-Comp07
White perch	Fillet (with skin)	LPR3-MAFT-Comp08
White perch	Fillet (with skin)	LPR3-MAFT-Comp13
White perch	Fillet (with skin)	LPR6-MAFT-Comp24
White perch	Fillet (with skin)	LPR6-MAFT-Ind122
White perch	Fillet (with skin)	LPR1-MAFT-Comp01
White perch	Fillet (with skin)	LPR8-MAFT-Comp26
White perch	Fillet (with skin)	LPR8-MAFT-Comp31
White perch	Fillet (with skin)	LPR8-MAFT-Comp27
White perch	Fillet (with skin)	LPR5-MAFT-Comp20
White perch	Fillet (with skin)	LPR5-MAFT-Comp21
White perch	Fillet (with skin)	LPR5-MAFT-Comp22
White perch	Fillet (with skin)	LPR4-MAFT-Comp16
White perch	Fillet (with skin)	LPR4-MAFT-Comp17
White perch	Fillet (with skin)	LPR1-MAFT-Ind145
American eel	Fillet (skinless)	LPR3-ARFT-Comp20
American eel	Fillet (skinless)	LPR3-ARFT-Comp06
American eel	Fillet (skinless)	LPR3-ARFT-Ind005
American eel	Fillet (skinless)	LPR3-ARFT-Comp05
American eel	Fillet (skinless)	LPR3-ARFT-Ind010
American eel	Fillet (skinless)	LPR3-ARFT-Ind014
American eel	Fillet (skinless)	LPR5-ARFT-Comp09
American eel	Fillet (skinless)	LPR5-ARFT-Ind021
American eel	Fillet (skinless)	LPR4-ARFT-Ind022
American eel	Fillet (skinless)	LPR4-ARFT-Ind026
American eel	Fillet (skinless)	LPR5-ARFT-Comp12
American eel	Fillet (skinless)	LPR5-ARFT-Ind030
American eel	Fillet (skinless)	LPR4-ARFT-Comp07
American eel	Fillet (skinless)	LPR4-ARFT-Ind034
American eel	Fillet (skinless)	LPR5-ARFT-Comp10
American eel	Fillet (skinless)	LPR5-ARFT-Ind040
American eel	Fillet (skinless)	LPR4-ARFT-Comp08
American eel	Fillet (skinless)	LPR4-ARFT-Ind044
American eel	Fillet (skinless)	LPR5-ARFT-Ind049
American eel	Fillet (skinless)	LPR5-ARFT-Ind048
American eel	Fillet (skinless)	LPR6-ARFT-Ind065
American eel	Fillet (skinless)	LPR7-ARFT-Ind071

American eel	Fillet (skinless)	LPR6-ARFT-Ind073
American eel	Fillet (skinless)	LPR1-ARFT-Comp01
American eel	Fillet (skinless)	LPR1-ARFT-Comp02
American eel	Fillet (skinless)	LPR5-ARFT-Ind086
American eel	Fillet (skinless)	LPR8-ARFT-Comp17
American eel	Fillet (skinless)	LPR8-ARFT-Comp21
American eel	Fillet (skinless)	LPR8-ARFT-Comp22
American eel	Fillet (skinless)	LPR8-ARFT-Comp14
American eel	Fillet (skinless)	LPR2-ARFT-Comp04
American eel	Fillet (skinless)	LPR1-ARFT-Ind085
Rinsate Blank		LPR-071910-RB

American eel	Carcass	LPR2-ARCT-Comp04
American eel	Carcass	LPR1-ARCT-Ind085
American eel	Whole body	LPR3-ARWB-Ind001
American eel	Whole body	LPR3-ARWB-Ind009
American eel	Whole body	LPR3-ARWB-Ind012
American eel	Whole body	LPR4-ARWB-Ind024
American eel	Whole body	LPR4-ARWB-Ind025
American eel	Whole body	LPR5-ARWB-Ind039
American eel	Whole body	LPR4-ARWB-Ind043
American eel	Whole body	LPR5-ARWB-Comp11
American eel	Whole body	LPR4-ARWB-Ind060
American eel	Whole body	LPR5-ARWB-Ind062
American eel	Whole body	LPR7-ARWB-Ind070
American eel	Whole body	LPR6-ARWB-Ind069
American eel	Whole body	LPR6-ARWB-Ind074
American eel	Whole body	LPR1-ARWB-Comp03
American eel	Whole body	LPR8-ARWB-Comp16
American eel	Whole body	LPR8-ARWB-Comp15
American eel	Whole body	LPR8-ARWB-Comp18
American eel	Whole body	LPR8-ARWB-Comp13
American eel	Whole body	LPR8-ARWB-Comp19

SDG	Lab ID	SVOCs (8270C)	Percent Moisture (SM2540G Mod)	PCB Aroclors (8082)	Alkylated PAHs (8270C)
L1003087	L1003087-01	X	X	X	X
L1003087	L1003087-02	X	X	X	X
L1003087	L1003087-03	X	X	X	X
L1003087	L1003087-04	X	X	X	X
L1003087	L1003087-05	X	X	X	X
L1003087	L1003087-06	X	X	X	X
L1003087	L1003087-07	X	X	X	X
L1003087	L1003087-08	X	X	X	X
L1003087	L1003087-09	X	X	X	X
L1003087	L1003087-10	X	X	X	X
L1003087	L1003087-11	X	X	X	X
L1003087	L1003087-12	X	X	X	X
L1003087	L1003087-13	X	X	X	X
L1003087	L1003087-14	X	X	X	X
L1003087	L1003087-15	X	X	X	X
L1003087	L1003087-16	X	X	X	X
L1003087	L1003087-17	X	X	X	X
L1003087	L1003087-18	X	X	X	X
L1003087	L1003087-19	X	X	X	X
L1003087	L1003087-20	X	X	X	X
L1003087	L1003087-21	X	X	X	X
L1003087	L1003087-22	X	X	X	X
L1003087	L1003087-23	X	X	X	X
L1003087	L1003087-24	X	X	X	X
L1003087	L1003087-25	X	X	X	X
L1003087	L1003087-26	X	X	X	X
L1003087	L1003087-27	X		X	X
L1003087	L1003087-28	X	X	X	X
L1003087	L1003087-29	X	X	X	X
L1003087	L1003087-30	X	X	X	X
L1003087	L1003087-31	X	X	X	X
L1003087	L1003087-32	X	X	X	X
L1003087	L1003087-33	X	X	X	X
L1003087	L1003087-34	X	X	X	X
L1003087	L1003087-35	X	X	X	X
L1003087	L1003087-36	X	X	X	X
L1003087	L1003087-37	X	X	X	X
L1003087	L1003087-38	X	X	X	X
L1003087	L1003087-39	X	X	X	X
L1003087	L1003087-40	X	X	X	X

L1003087	L1003087-41	x	x	x	x
L1003087	L1003087-42	x	x	x	x
L1003087	L1003087-43	x		x	x
L1003161	L1003161-01	x	x	x	x
L1003161	L1003161-02	x	x	x	x
L1003161	L1003161-03	x	x	x	x
L1003161	L1003161-04	x	x	x	x
L1003161	L1003161-05	x	x	x	x
L1003161	L1003161-06	x	x	x	x
L1003161	L1003161-07	x	x	x	x
L1003161	L1003161-08	x	x	x	x
L1003161	L1003161-09	x	x	x	x
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L1003161	L1003161-19	x	x	x	x
L1003161	L1003161-20	x	x	x	x
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L1003164	L1003164-02	x	x	x	x
L1003164	L1003164-03	x	x	x	x
L1003164	L1003164-04	x	x	x	x
L1003164	L1003164-05	x	x	x	x
L1003164	L1003164-06	x	x	x	x
L1003164	L1003164-07	x	x	x	x
L1003164	L1003164-08	x	x	x	x
L1003164	L1003164-09	x	x	x	x
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L1003164	L1003164-14	x	x	x	x
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L1003164	L1003164-17	x	x	x	x
L1003164	L1003164-18	x	x	x	x
L1003164	L1003164-19	x	x	x	x
L1003164	L1003164-20	x	x	x	x

L1003164	L1003164-21	x	x	x	x
L1004936	L1004936-01	x	x	x	x
L1004936	L1004936-02	x	x	x	x
L1004936	L1004936-03	x	x	x	x
L1004936	L1004936-04	x	x	x	x
L1004936	L1004936-05	x	x	x	x
L1004936	L1004936-06	x	x	x	x
L1004936	L1004936-07	x	x	x	x
L1007321	L1007321-01	x	x	x	x
L1007321	L1007321-02	x	x	x	x
L1007321	L1007321-03	x	x	x	x
L1007321	L1007321-04	x	x	x	x
L1007321	L1007321-05	x	x	x	x
L1007321	L1007321-06	x	x	x	x
L1007321	L1007321-07	x	x	x	x
L1007321	L1007321-08	x	x	x	x
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L1007321	L1007321-10	x	x	x	x
L1007321	L1007321-11	x	x	x	x
L1007321	L1007321-12	x	x	x	x
L1007321	L1007321-13	x	x	x	x
L1007321	L1007321-14	x	x	x	x
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L1007344	L1007344-03	x	x	x	x
L1007344	L1007344-04	x	x	x	x
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L1007344	L1007344-06	x	x	x	x
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L1007344	L1007344-17	x	x	x	x
L1007344	L1007344-18	x	x	x	x
L1007344	L1007344-19	x		x	x
L1007346	L1007346-01	x	x	x	x
L1007346	L1007346-02	x	x	x	x
L1007346	L1007346-03	x	x	x	x

L1007346	L1007346-04	x	x	x	x
L1007346	L1007346-05	x	x	x	x
L1007346	L1007346-06	x	x	x	x
L1007346	L1007346-07	x	x	x	x
L1007346	L1007346-08	x	x	x	x
L1007346	L1007346-09	x	x	x	x
L1007346	L1007346-10	x	x	x	x
L1007346	L1007346-11	x	x	x	x
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L1007319	L1007319-01	x	x	x	x
L1007319	L1007319-02	x	x	x	x
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L1007320	L1007320-01	x	x	x	x
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L1007320	L1007320-03	x	x	x	x
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L1007320	L1007320-05	x	x	x	x
L1007320	L1007320-06	x	x	x	x
L1007320	L1007320-07	x	x	x	x
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L1009361	L1009361-07	x	x	x	x
L1009361	L1009361-08	x	x	x	x
L1009361	L1009361-09	x	x	x	x
L1009361	L1009361-10	x	x	x	x
L1009361	L1009361-11	x	x	x	x
L1009361	L1009361-12	x	x	x	x
L1009361	L1009361-14	x	x	x	x
L1009361	L1009361-15	x	x	x	x
L1009361	L1009361-16	x	x	x	x
L1009361	L1009361-17	x	x	x	x
L1009361	L1009361-18	x	x	x	x
L1009361	L1009361-19	x	x	x	x
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L1009361	L1009361-22	x	x	x	x
L1009361	L1009361-23	x	x	x	x

L1009361	L1009361-24	x	x	x	x
L1009361	L1009361-25	x	x	x	x
L1009361	L1009361-26	x	x	x	x
L1009361	L1009361-27	x	x	x	x
L1009361	L1009361-28	x	x	x	x
L1009361	L1009361-29	x	x	x	x
L1009361	L1009361-30	x	x	x	x
L1009361	L1009361-31	x	x	x	x
L1009361	L1009361-32	x	x	x	x
L1009361	L1009361-33	x	x	x	x
L1009361	L1009361-34	x		x	x
L1009363	L1009363-01	x	x	x	x
L1009363	L1009363-02	x	x	x	x
L1009363	L1009363-03	x	x	x	x
L1009363	L1009363-04	x	x	x	x
L1009363	L1009363-05	x	x	x	x
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L1009363	L1009363-07	x	x	x	x
L1009363	L1009363-08	x	x	x	x
L1009363	L1009363-09	x	x	x	x
L1009363	L1009363-10	x	x	x	x
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L1009363	L1009363-18	x	x	x	x
L1009363	L1009363-19	x	x	x	x
L1009363	L1009363-20	x	x	x	x
L1009363	L1009363-21	x	x	x	x

2009 Fish and Blue Crab Tissue Chemistry Data for the LPRSA

Appendix D

Table D-2. 2009 SDGs, sample IDs, and analyses - Analytical Perspectives

FINAL

Species	Tissue Type	LPR ID	SDG
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp37	P2102
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp38	P2102
Blue Crab	Muscle/hepatopancreas	LPR4-CSMH-Comp31	P2102
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp41	P2102
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp42	P2102
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp44	P2102
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp45	P2102
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp46	P2102
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp49	P2102
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp53	P2102
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp04	P2102
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp61	P2103
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp48	P2103
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp54	P2103
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp50	P2103
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp55	P2103
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp56	P2103
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp57	P2103
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp01	P2103
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp02	P2103
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp03	P2103
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp58	P2135
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp06	P2135
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp07	P2135
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp11	P2135
Blue Crab	Muscle/hepatopancreas	LPR4-CSMH-Comp30	P2135
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp13	P2135
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp14	P2135
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp17	P2135
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp15	P2135
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp18	P2135
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp19	P2140
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp20	P2140
Blue Crab	Muscle/hepatopancreas	LPR3-CSMH-Comp24	P2140
Blue Crab	Muscle/hepatopancreas	LPR5-CSMH-Comp34	P2140
Blue Crab	Muscle/hepatopancreas	LPR3-CSMH-Comp26	P2140
Blue Crab	Muscle/hepatopancreas	LPR4-CSMH-Comp32	P2140
Blue Crab	Muscle/hepatopancreas	LPR4-CSMH-Comp33	P2140

Blue Crab	Muscle/hepatopancreas	LPR3-CSMH-Comp27	P2140
Blue Crab	Muscle/hepatopancreas	LPR3-CSMH-Comp28	P2140
Blue Crab	Muscle/hepatopancreas	LPR5-CSMH-Comp35	P2140
Blue Crab	Carcass	LPR4-CSCT-Comp31	P2133
Blue Crab	Carcass	LPR1-CSCT-Comp01	P2133
Blue Crab	Carcass	LPR1-CSCT-Comp02	P2133
Blue Crab	Carcass	LPR1-CSCT-Comp03	P2133
Blue Crab	Carcass	LPR1-CSCT-Comp04	P2133
Blue Crab	Carcass	LPR1-CSCT-Comp06	P2133
Blue Crab	Carcass	LPR1-CSCT-Comp07	P2133
Blue Crab	Carcass	LPR1-CSCT-Comp11	P2133
Blue Crab	Carcass	LPR4-CSCT-Comp30	P2133
Blue Crab	Carcass	LPR1-CSCT-Comp13	P2133
Blue Crab	Carcass	LPR2-CSCT-Comp14	P2134
Blue Crab	Carcass	LPR2-CSCT-Comp17	P2134
Blue Crab	Carcass	LPR2-CSCT-Comp15	P2134
Blue Crab	Carcass	LPR2-CSCT-Comp18	P2134
Blue Crab	Carcass	LPR2-CSCT-Comp19	P2134
Blue Crab	Carcass	LPR2-CSCT-Comp20	P2134
Blue Crab	Carcass	LPR3-CSCT-Comp24	P2134
Blue Crab	Carcass	LPR5-CSCT-Comp34	P2134
Blue Crab	Carcass	LPR3-CSCT-Comp26	P2134
Blue Crab	Carcass	LPR4-CSCT-Comp32	P2134
Blue Crab	Carcass	LPR4-CSCT-Comp33	P2134
Blue Crab	Carcass	LPR3-CSCT-Comp27	P2134
Blue Crab	Carcass	LPR3-CSCT-Comp28	P2134
Blue Crab	Carcass	LPR5-CSCT-Comp35	P2134
Blue Crab	Muscle only	LPR7-CSMT-Comp52	P2161
Blue Crab	Muscle only	LPR1-CSMT-Comp08	P2161
Blue Crab	Muscle only	LPR1-CSMT-Comp10	P2161
Blue Crab	Muscle only	LPR1-CSMT-Comp12	P2161
Blue Crab	Muscle only	LPR2-CSMT-Comp16	P2161
Blue Crab	Muscle only	LPR6-CSMT-Comp39	P2161
Blue Crab	Muscle only	LPR2-CSMT-Comp22	P2161
Blue Crab	Muscle only	LPR2-CSMT-Comp23	P2161
Blue Crab	Muscle only	LPR6-CSMT-Comp40	P2161
Blue Crab	Muscle only	LPR3-CSMT-Comp25	P2161
Blue Crab	Muscle only	LPR2-CSMT-Comp21	P2161
Blue Crab	Muscle only	LPR6-CSMT-Comp43	P2160
Blue Crab	Muscle only	LPR3-CSMT-Comp29	P2160
Blue Crab	Muscle only	LPR5-CSMT-Comp36	P2160
Blue Crab	Muscle only	LPR7-CSMT-Comp47	P2160
Blue Crab	Muscle only	LPR7-CSMT-Comp51	P2160
Blue Crab	Muscle only	LPR8-CSMT-Comp59	P2160

Blue Crab	Muscle only	LPR8-CSMT-Comp60	P2160
Blue Crab	Muscle only	LPR8-CSMT-Comp62	P2160
Blue Crab	Muscle only	LPR1-CSMT-Comp05	P2160
Blue Crab	Muscle only	LPR1-CSMT-Comp09	P2160
Blue Crab	Hepatopancreas only	LPR1-CSHT-Comp05	P2159
Blue Crab	Hepatopancreas only	LPR2-CSHT-Comp63	P2159
Blue Crab	Hepatopancreas only	LPR1-CSHT-Comp09	P2159
Blue Crab	Hepatopancreas only	LPR3-CSHT-Comp64	P2159
Blue Crab	Hepatopancreas only	LPR2-CSHT-Comp21	P2159
Blue Crab	Hepatopancreas only	LPRX-CSHT-Comp65	P2159
Blue Crab	Hepatopancreas only	LPR8-CSHT-Comp66	P2159
Rinsate Blank		LPR-032310-RB	P2463
Rinsate Blank		LPR-041210-RB	P2463
Rinsate Blank		LPR-060810-RB	P2463
Rinsate Blank		LPR-061510-RB	P2463
Rinsate Blank		LPR-062910-RB	P2463
Rinsate Blank		LPR-071310-RB	P2463
Rinsate Blank		LPR-071910-RB	P2463
Northern pike	Fillet (with skin)	LPR6-ELFT-Ind001	P2333
Largemouth bass	Fillet (with skin)	LPR5-MSFT-Comp01	P2333
Largemouth bass	Fillet (with skin)	LPR8-MSFT-Ind002	P2333
Largemouth bass	Fillet (with skin)	LPR5-MSFT-Ind009	P2333
Smallmouth bass	Fillet (with skin)	LPR4-MDFT-Comp01	P2333
Smallmouth bass	Fillet (with skin)	LPR5-MDFT-Comp02	P2333
Smallmouth bass	Fillet (with skin)	LPR8-MDFT-Comp03	P2333
Northern pike	Carcass	LPR6-ELCT-Ind001	P2351
Largemouth bass	Carcass	LPR5-MSCT-Comp01	P2351
Largemouth bass	Carcass	LPR8-MSCT-Ind002	P2351
Largemouth bass	Carcass	LPR5-MSCT-Ind009	P2351
Smallmouth bass	Carcass	LPR4-MDCT-Comp01	P2351
Smallmouth bass	Carcass	LPR5-MDCT-Comp02	P2351
Smallmouth bass	Carcass	LPR8-MDCT-Comp03	P2351
Carp	Whole body	LPR3-CCWB-Ind002	P2352
Carp	Whole body	LPR3-CCWB-Ind005	P2352
Carp	Whole body	LPR5-CCWB-Ind011	P2352
Carp	Whole body	LPR6-CCWB-Ind021	P2352
Carp	Whole body	LPR6-CCWB-Ind028	P2352
Carp	Whole body	LPR7-CCWB-Ind042	P2352
Carp	Whole body	LPR7-CCWB-Ind069	P2352
Carp	Whole body	LPR8-CCWB-Ind139	P2352
Carp	Whole body	LPR8-CCWB-Ind147	P2352
Carp	Whole body	LPR5-CCWB-Ind160	P2352
Carp	Whole body	LPR4-CCWB-Ind175	P2352
Carp	Whole body	LPR4-CCWB-Ind186	P2352

Brown Bullhead	Whole body	LPR3-ANWB-Ind001	P2353
Brown Bullhead	Whole body	LPR6-ANWB-Ind004	P2353
Brown Bullhead	Whole body	LPR4-ANWB-Ind007	P2353
Brown Bullhead	Whole body	LPR6-ANWB-Ind003	P2353
Brown Bullhead	Whole body	LPR6-ANWB-Ind005	P2353
Brown Bullhead	Whole body	LPR7-ANWB-Ind006	P2353
Carp	Fillet (with skin)	LPR3-CCFT-Ind001	P2354
Carp	Fillet (with skin)	LPR3-CCFT-Ind004	P2354
Carp	Fillet (with skin)	LPR6-CCFT-Ind032	P2354
Carp	Fillet (with skin)	LPR7-CCFT-Ind068	P2354
Carp	Fillet (with skin)	LPR7-CCFT-Ind092	P2354
Carp	Fillet (with skin)	LPR6-CCFT-Ind104	P2354
Carp	Fillet (with skin)	LPR8-CCFT-Ind121	P2354
Carp	Fillet (with skin)	LPR8-CCFT-Ind131	P2354
Carp	Fillet (with skin)	LPR4-CCFT-Ind155	P2354
Carp	Fillet (with skin)	LPR4-CCFT-Ind156	P2354
Carp	Fillet (with skin)	LPR5-CCFT-Ind181	P2354
Carp	Fillet (with skin)	LPR5-CCFT-Ind184	P2354
White perch	Whole body	LPR1-MAWB-Ind138	P2429
White perch	Whole body	LPR2-MAWB-Ind158	P2429
White perch	Whole body	LPR8-MAWB-Comp32	P2429
White perch	Whole body	LPR8-MAWB-Comp28	P2429
White perch	Whole body	LPR8-MAWB-Comp29	P2429
White perch	Whole body	LPR4-MAWB-Comp14	P2429
White perch	Whole body	LPR5-MAWB-Comp19	P2429
White perch	Whole body	LPR5-MAWB-Comp18	P2429
White perch	Whole body	LPR5-MAWB-Comp23	P2429
White perch	Whole body	LPR4-MAWB-Comp15	P2429
White perch	Fillet (with skin)	LPR3-MAFT-Comp02	P2426
White perch	Fillet (with skin)	LPR3-MAFT-Comp03	P2426
White perch	Fillet (with skin)	LPR3-MAFT-Comp04	P2426
White perch	Fillet (with skin)	LPR3-MAFT-Comp05	P2426
White perch	Fillet (with skin)	LPR3-MAFT-Comp07	P2426
White perch	Fillet (with skin)	LPR3-MAFT-Comp08	P2426
White perch	Fillet (with skin)	LPR3-MAFT-Comp13	P2426
White perch	Fillet (with skin)	LPR6-MAFT-Comp24	P2426
White perch	Fillet (with skin)	LPR6-MAFT-Ind122	P2426
White perch	Fillet (with skin)	LPR1-MAFT-Comp01	P2426
White perch	Fillet (with skin)	LPR8-MAFT-Comp26	P2427
White perch	Fillet (with skin)	LPR8-MAFT-Comp31	P2427
White perch	Fillet (with skin)	LPR8-MAFT-Comp27	P2427
White perch	Fillet (with skin)	LPR5-MAFT-Comp20	P2427
White perch	Fillet (with skin)	LPR5-MAFT-Comp21	P2427
White perch	Fillet (with skin)	LPR5-MAFT-Comp22	P2427

White perch	Fillet (with skin)	LPR4-MAFT-Comp16	P2427
White perch	Fillet (with skin)	LPR4-MAFT-Comp17	P2427
White perch	Fillet (with skin)	LPR1-MAFT-Ind145	P2427
White perch	Carcass	LPR1-MACT-Ind145	P2428
White perch	Whole body	LPR3-MAWB-Comp06	P2428
White perch	Whole body	LPR3-MAWB-Comp09	P2428
White perch	Whole body	LPR3-MAWB-Comp10	P2428
White perch	Whole body	LPR3-MAWB-Comp11	P2428
White perch	Whole body	LPR3-MAWB-Comp12	P2428
White perch	Whole body	LPR3-MAWB-Comp30	P2428
White perch	Whole body	LPR7-MAWB-Ind123	P2428
White perch	Whole body	LPR7-MAWB-Comp25	P2428
White perch	Whole body	LPR6-MAWB-Ind128	P2428
White sucker	Fillet (with skin)	LPR8-WSFT-Ind009	P2413
White sucker	Carcass	LPR8-WSCT-Ind009	P2413
White sucker	Fillet (with skin)	LPR8-WSFT-Ind013	P2413
White sucker	Carcass	LPR8-WSCT-Ind013	P2413
White sucker	Fillet (with skin)	LPR5-WSFT-Ind019	P2413
White sucker	Carcass	LPR5-WSCT-Ind019	P2413
White sucker	Fillet (with skin)	LPR5-WSFT-Ind020	P2413
White sucker	Carcass	LPR5-WSCT-Ind020	P2413
White sucker	Fillet (with skin)	LPR4-WSFT-Ind023	P2413
White sucker	Carcass	LPR4-WSCT-Ind023	P2413
Channel catfish	Carcass	LPR5-IPCT-Ind001	P2414
Channel catfish	Carcass	LPR6-IPCT-Ind003	P2414
Channel catfish	Carcass	LPR6-IPCT-Ind004	P2414
Channel catfish	Carcass	LPR7-IPCT-Ind005	P2414
Channel catfish	Carcass	LPR7-IPCT-Ind006	P2414
Channel catfish	Carcass	LPR8-IPCT-Ind008	P2414
Channel catfish	Carcass	LPR8-IPCT-Ind009	P2414
Channel catfish	Carcass	LPR8-IPCT-Ind010	P2414
Channel catfish	Carcass	LPR8-IPCT-Ind011	P2414
Channel catfish	Carcass	LPR8-IPCT-Ind012	P2414
Channel catfish	Carcass	LPR8-IPCT-Ind013	P2414
Channel catfish	Fillet (skinless)	LPR5-IPFT-Ind001	P2415
Channel catfish	Fillet (skinless)	LPR6-IPFT-Ind003	P2415
Channel catfish	Fillet (skinless)	LPR6-IPFT-Ind004	P2415
Channel catfish	Fillet (skinless)	LPR7-IPFT-Ind005	P2415
Channel catfish	Fillet (skinless)	LPR7-IPFT-Ind006	P2415
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind008	P2415
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind009	P2415
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind010	P2415
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind011	P2415
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind012	P2415
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind013	P2415

White catfish	Carcass	LPR3-ACCT-Ind001	P2416
White catfish	Carcass	LPR3-ACCT-Ind002	P2416
White catfish	Carcass	LPR3-ACCT-Ind003	P2416
White catfish	Carcass	LPR3-ACCT-Ind005	P2416
White catfish	Carcass	LPR5-ACCT-Ind006	P2416
White catfish	Carcass	LPR6-ACCT-Ind008	P2416
White catfish	Carcass	LPR6-ACCT-Ind009	P2416
White catfish	Carcass	LPR6-ACCT-Ind010	P2416
White catfish	Carcass	LPR6-ACCT-Ind013	P2416
White catfish	Carcass	LPR7-ACCT-Ind014	P2416
White catfish	Carcass	LPR6-ACCT-Ind016	P2416
White catfish	Carcass	LPR7-ACCT-Ind017	P2416
White catfish	Fillet (skinless)	LPR3-ACFT-Ind001	P2418
White catfish	Fillet (skinless)	LPR3-ACFT-Ind002	P2418
White catfish	Fillet (skinless)	LPR3-ACFT-Ind003	P2418
White catfish	Fillet (skinless)	LPR3-ACFT-Ind005	P2418
White catfish	Fillet (skinless)	LPR5-ACFT-Ind006	P2418
White catfish	Fillet (skinless)	LPR6-ACFT-Ind008	P2418
White catfish	Fillet (skinless)	LPR6-ACFT-Ind009	P2418
White catfish	Fillet (skinless)	LPR6-ACFT-Ind010	P2418
White catfish	Fillet (skinless)	LPR6-ACFT-Ind013	P2418
White catfish	Fillet (skinless)	LPR7-ACFT-Ind014	P2418
White catfish	Fillet (skinless)	LPR6-ACFT-Ind016	P2418
White catfish	Fillet (skinless)	LPR7-ACFT-Ind017	P2418
White catfish	Carcass	LPR2-ACCT-Ind018	P2419
White catfish	Carcass	LPR8-ACCT-Ind019	P2419
White catfish	Carcass	LPR8-ACCT-Ind020	P2419
White catfish	Carcass	LPR8-ACCT-Ind021	P2419
White catfish	Carcass	LPR8-ACCT-Ind022	P2419
White catfish	Carcass	LPR4-ACCT-Ind023	P2419
White catfish	Carcass	LPR5-ACCT-Ind024	P2419
White catfish	Fillet (skinless)	LPR2-ACFT-Ind018	P2420
White catfish	Fillet (skinless)	LPR8-ACFT-Ind019	P2420
White catfish	Fillet (skinless)	LPR8-ACFT-Ind020	P2420
White catfish	Fillet (skinless)	LPR8-ACFT-Ind021	P2420
White catfish	Fillet (skinless)	LPR8-ACFT-Ind022	P2420
White catfish	Fillet (skinless)	LPR4-ACFT-Ind023	P2420
White catfish	Fillet (skinless)	LPR5-ACFT-Ind024	P2420
American eel	Fillet (skinless)	LPR3-ARFT-Comp20	P2447
American eel	Fillet (skinless)	LPR3-ARFT-Comp06	P2447
American eel	Fillet (skinless)	LPR3-ARFT-Ind005	P2447
American eel	Fillet (skinless)	LPR3-ARFT-Comp05	P2447
American eel	Fillet (skinless)	LPR3-ARFT-Ind010	P2447
American eel	Fillet (skinless)	LPR3-ARFT-Ind014	P2447

American eel	Fillet (skinless)	LPR5-ARFT-Comp09	P2447
American eel	Fillet (skinless)	LPR5-ARFT-Ind021	P2447
American eel	Fillet (skinless)	LPR4-ARFT-Ind022	P2447
American eel	Fillet (skinless)	LPR4-ARFT-Ind026	P2447
American eel	Fillet (skinless)	LPR5-ARFT-Comp12	P2447
American eel	Fillet (skinless)	LPR5-ARFT-Ind030	P2447
American eel	Fillet (skinless)	LPR4-ARFT-Comp07	P2448
American eel	Fillet (skinless)	LPR4-ARFT-Ind034	P2448
American eel	Fillet (skinless)	LPR5-ARFT-Comp10	P2448
American eel	Fillet (skinless)	LPR5-ARFT-Ind040	P2448
American eel	Fillet (skinless)	LPR4-ARFT-Comp08	P2448
American eel	Fillet (skinless)	LPR4-ARFT-Ind044	P2448
American eel	Fillet (skinless)	LPR5-ARFT-Ind049	P2448
American eel	Fillet (skinless)	LPR5-ARFT-Ind048	P2448
American eel	Fillet (skinless)	LPR6-ARFT-Ind065	P2448
American eel	Fillet (skinless)	LPR7-ARFT-Ind071	P2448
American eel	Fillet (skinless)	LPR6-ARFT-Ind073	P2448
American eel	Fillet (skinless)	LPR1-ARFT-Comp01	P2449
American eel	Fillet (skinless)	LPR1-ARFT-Comp02	P2449
American eel	Fillet (skinless)	LPR5-ARFT-Ind086	P2449
American eel	Fillet (skinless)	LPR8-ARFT-Comp17	P2449
American eel	Fillet (skinless)	LPR8-ARFT-Comp21	P2449
American eel	Fillet (skinless)	LPR8-ARFT-Comp22	P2449
American eel	Fillet (skinless)	LPR8-ARFT-Comp14	P2449
American eel	Fillet (skinless)	LPR2-ARFT-Comp04	P2449
American eel	Fillet (skinless)	LPR1-ARFT-Ind085	P2449
American eel	Whole body	LPR3-ARWB-Ind001	P2451
American eel	Whole body	LPR3-ARWB-Ind009	P2451
American eel	Whole body	LPR3-ARWB-Ind012	P2451
American eel	Whole body	LPR4-ARWB-Ind024	P2451
American eel	Whole body	LPR4-ARWB-Ind025	P2451
American eel	Whole body	LPR5-ARWB-Ind039	P2451
American eel	Whole body	LPR4-ARWB-Ind043	P2451
American eel	Whole body	LPR5-ARWB-Comp11	P2451
American eel	Whole body	LPR4-ARWB-Ind060	P2451
American eel	Whole body	LPR5-ARWB-Ind062	P2451
American eel	Whole body	LPR7-ARWB-Ind070	P2451
American eel	Whole body	LPR6-ARWB-Ind069	P2451
American eel	Carcass	LPR2-ARCT-Comp04	P2450
American eel	Carcass	LPR1-ARCT-Ind085	P2450
American eel	Whole body	LPR6-ARWB-Ind074	P2450
American eel	Whole body	LPR1-ARWB-Comp03	P2450
American eel	Whole body	LPR8-ARWB-Comp16	P2450
American eel	Whole body	LPR8-ARWB-Comp15	P2450
American eel	Whole body	LPR8-ARWB-Comp18	P2450

American eel
American eel

Whole body
Whole body

LPR8-ARWB-Comp13
LPR8-ARWB-Comp19

P2450
P2450

Lab ID	PCDD/PCDF (1613B)	PCB Congeners (1668B)
P2102_001	x	x
P2102_002	x	x
P2102_003	x	x
P2102_004	x	x
P2102_005	x	x
P2102_006	x	x
P2102_007	x	x
P2102_008	x	x
P2102_009	x	x
P2102_010	x	x
P2102_011	x	x
P2103_001	x	x
P2103_002	x	x
P2103_003	x	x
P2103_004	x	x
P2103_005	x	x
P2103_006	x	x
P2103_007	x	x
P2103_008	x	x
P2103_009	x	x
P2103_010	x	x
P2135_001	x	x
P2135_002	x	x
P2135_003	x	x
P2135_004	x	x
P2135_005	x	x
P2135_006	x	x
P2135_007	x	x
P2135_008	x	x
P2135_009	x	x
P2135_010	x	x
P2140_001	x	x
P2140_002	x	x
P2140_003	x	x
P2140_004	x	x
P2140_005	x	x
P2140_006	x	x
P2140_007	x	x

P2140_008	x	x
P2140_009	x	x
P2140_010	x	x

P2133_001	x	x
P2133_002	x	x
P2133_003	x	x
P2133_004	x	x
P2133_005	x	x
P2133_006	x	x
P2133_007	x	x
P2133_008	x	x
P2133_009	x	x
P2133_010	x	x

P2134_001	x	x
P2134_002	x	x
P2134_003	x	x
P2134_004	x	x
P2134_005	x	x
P2134_006	x	x
P2134_007	x	x
P2134_008	x	x
P2134_009	x	x
P2134_010	x	x
P2134_011	x	x
P2134_012	x	x
P2134_013	x	x
P2134_014	x	x

P2161_001	x	x
P2161_002	x	x
P2161_003	x	x
P2161_004	x	x
P2161_005	x	x
P2161_006	x	x
P2161_007	x	x
P2161_008	x	x
P2161_009	x	x
P2161_010	x	x
P2161_011	x	x

P2160_001	x	x
P2160_002	x	x
P2160_003	x	x
P2160_004	x	x
P2160_005	x	x
P2160_006	x	x

P2160_007	x	x
P2160_008	x	x
P2160_009	x	x
P2160_010	x	x

P2159_001	x	x
P2159_002	x	x
P2159_003	x	x
P2159_004	x	x
P2159_005	x	x
P2159_006	x	x
P2159_007	x	x

P2463_001	x	x
P2463_002	x	x
P2463_003	x	x
P2463_004	x	x
P2463_005	x	x
P2463_006	x	x
P2463_007	x	x

P2333_001	x	x
P2333_002	x	x
P2333_003	x	x
P2333_004	x	x
P2333_005	x	x
P2333_006	x	x
P2333_007	x	x

P2351_001	x	x
P2351_002	x	x
P2351_003	x	x
P2351_004	x	x
P2351_005	x	x
P2351_006	x	x
P2351_007	x	x

P2352_001	x	x
P2352_002	x	x
P2352_003	x	x
P2352_004	x	x
P2352_005	x	x
P2352_006	x	x
P2352_007	x	x
P2352_008	x	x
P2352_009	x	x
P2352_010	x	x
P2352_011	x	x
P2352_012	x	x

P2353_001	x	x
P2353_002	x	x
P2353_003	x	x
P2353_004	x	x
P2353_005	x	x
P2353_006	x	x

P2354_001	x	x
P2354_002	x	x
P2354_003	x	x
P2354_004	x	x
P2354_005	x	x
P2354_006	x	x
P2354_007	x	x
P2354_008	x	x
P2354_009	x	x
P2354_010	x	x
P2354_011	x	x
P2354_012	x	x

P2429_001	x	x
P2429_002	x	x
P2429_003	x	x
P2429_004	x	x
P2429_005	x	x
P2429_006	x	x
P2429_007	x	x
P2429_008	x	x
P2429_009	x	x
P2429_010	x	x

P2426_001	x	x
P2426_002	x	x
P2426_003	x	x
P2426_004	x	x
P2426_005	x	x
P2426_006	x	x
P2426_007	x	x
P2426_008	x	x
P2426_009	x	x
P2426_010	x	x

P2427_001	x	x
P2427_002	x	x
P2427_003	x	x
P2427_004	x	x
P2427_005	x	x
P2427_006	x	x

P2427_007	x	x
P2427_008	x	x
P2427_009	x	x

P2428_001	x	x
P2428_002	x	x
P2428_003	x	x
P2428_004	x	x
P2428_005	x	x
P2428_006	x	x
P2428_007	x	x
P2428_008	x	x
P2428_009	x	x
P2428_010	x	x

P2413_006	x	x
P2413_001	x	x
P2413_007	x	x
P2413_002	x	x
P2413_008	x	x
P2413_003	x	x
P2413_009	x	x
P2413_004	x	x
P2413_010	x	x
P2413_005	x	x

P2414_007	x	x
P2414_008	x	x
P2414_009	x	x
P2414_010	x	x
P2414_011	x	x
P2414_001	x	x
P2414_002	x	x
P2414_003	x	x
P2414_004	x	x
P2414_005	x	x
P2414_006	x	x

P2415_007	x	x
P2415_008	x	x
P2415_009	x	x
P2415_010	x	x
P2415_011	x	x
P2415_001	x	x
P2415_002	x	x
P2415_003	x	x
P2415_004	x	x
P2415_005	x	x
P2415_006	x	x

P2416_001	x	x
P2416_002	x	x
P2416_003	x	x
P2416_004	x	x
P2416_005	x	x
P2416_006	x	x
P2416_007	x	x
P2416_008	x	x
P2416_009	x	x
P2416_010	x	x
P2416_011	x	x
P2416_012	x	x

P2418_001	x	x
P2418_002	x	x
P2418_003	x	x
P2418_004	x	x
P2418_005	x	x
P2418_006	x	x
P2418_007	x	x
P2418_008	x	x
P2418_009	x	x
P2418_010	x	x
P2418_011	x	x
P2418_012	x	x

P2419_001	x	x
P2419_002	x	x
P2419_003	x	x
P2419_004	x	x
P2419_005	x	x
P2419_006	x	x
P2419_007	x	x

P2420_001	x	x
P2420_002	x	x
P2420_003	x	x
P2420_004	x	x
P2420_005	x	x
P2420_006	x	x
P2420_007	x	x

P2447_001	x	x
P2447_002	x	x
P2447_003	x	x
P2447_004	x	x
P2447_005	x	x
P2447_006	x	x

P2447_007	x	x
P2447_008	x	x
P2447_009	x	x
P2447_010	x	x
P2447_011	x	x
P2447_012	x	x

P2448_001	x	x
P2448_002	x	x
P2448_003	x	x
P2448_004	x	x
P2448_005	x	x
P2448_006	x	x
P2448_007	x	x
P2448_008	x	x
P2448_009	x	x
P2448_010	x	x
P2448_011	x	x

P2449_001	x	x
P2449_002	x	x
P2449_003	x	x
P2449_004	x	x
P2449_005	x	x
P2449_006	x	x
P2449_007	x	x
P2449_008	x	x
P2449_009	x	x

P2451_001	x	x
P2451_002	x	x
P2451_003	x	x
P2451_004	x	x
P2451_005	x	x
P2451_006	x	x
P2451_007	x	x
P2451_008	x	x
P2451_009	x	x
P2451_010	x	x
P2451_011	x	x
P2451_012	x	x

P2450_001	x	x
P2450_002	x	x
P2450_003	x	x
P2450_004	x	x
P2450_005	x	x
P2450_006	x	x
P2450_007	x	x

P2450_008	x	x
P2450_009	x	x

2009 Fish and Blue Crab Tissue Chemistry Data for the LPRSA

Appendix D

Table D-3. 2009 SDGs, sample IDs, and analyses - Brooks Rand Labs

FINAL

Species	Tissue Type	LPR ID
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp37
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp38
Blue Crab	Muscle/hepatopancreas	LPR4-CSMH-Comp31
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp41
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp42
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp44
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp45
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp46
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp49
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp53
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp61
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp48
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp54
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp50
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp55
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp56
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp57
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp01
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp02
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp03
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp04
Rinsate Blank		LPR-032310-RB
Blue Crab	Carcass	LPR4-CSCT-Comp31
Blue Crab	Carcass	LPR1-CSCT-Comp01
Blue Crab	Carcass	LPR1-CSCT-Comp02
Blue Crab	Carcass	LPR1-CSCT-Comp03
Blue Crab	Carcass	LPR1-CSCT-Comp04
Blue Crab	Carcass	LPR1-CSCT-Comp06
Blue Crab	Carcass	LPR1-CSCT-Comp07
Blue Crab	Carcass	LPR1-CSCT-Comp11
Blue Crab	Carcass	LPR4-CSCT-Comp30
Blue Crab	Carcass	LPR1-CSCT-Comp13
Blue Crab	Carcass	LPR2-CSCT-Comp14
Blue Crab	Carcass	LPR2-CSCT-Comp17
Blue Crab	Carcass	LPR2-CSCT-Comp15
Blue Crab	Carcass	LPR2-CSCT-Comp18
Blue Crab	Carcass	LPR2-CSCT-Comp19
Blue Crab	Carcass	LPR2-CSCT-Comp20
Blue Crab	Carcass	LPR3-CSCT-Comp24
Blue Crab	Carcass	LPR5-CSCT-Comp34
Blue Crab	Carcass	LPR3-CSCT-Comp26
Blue Crab	Carcass	LPR4-CSCT-Comp32

Blue Crab	Carcass	LPR4-CSCT-Comp33
Blue Crab	Carcass	LPR3-CSCT-Comp27
Blue Crab	Carcass	LPR3-CSCT-Comp28
Blue Crab	Carcass	LPR5-CSCT-Comp35
Blue Crab	Muscle only	LPR8-CSMH-Comp58
Blue Crab	Muscle only	LPR1-CSMH-Comp06
Blue Crab	Muscle only	LPR1-CSMH-Comp07
Blue Crab	Muscle only	LPR1-CSMH-Comp11
Blue Crab	Muscle only	LPR4-CSMH-Comp30
Blue Crab	Muscle only	LPR1-CSMH-Comp13
Blue Crab	Muscle only	LPR2-CSMH-Comp14
Blue Crab	Muscle only	LPR2-CSMH-Comp17
Blue Crab	Muscle only	LPR2-CSMH-Comp15
Blue Crab	Muscle only	LPR2-CSMH-Comp18
Blue Crab	Muscle only	LPR2-CSMH-Comp19
Blue Crab	Muscle only	LPR2-CSMH-Comp20
Blue Crab	Muscle only	LPR3-CSMH-Comp24
Blue Crab	Muscle only	LPR5-CSMH-Comp34
Blue Crab	Muscle only	LPR3-CSMH-Comp26
Blue Crab	Muscle only	LPR4-CSMH-Comp32
Blue Crab	Muscle only	LPR4-CSMH-Comp33
Blue Crab	Muscle only	LPR3-CSMH-Comp27
Blue Crab	Muscle only	LPR3-CSMH-Comp28
Blue Crab	Muscle only	LPR5-CSMH-Comp35
Rinsate Blank		LPR-041210-RB
Blue Crab	Hepatopancreas only	LPR1-CSHT-Comp05
Blue Crab	Hepatopancreas only	LPR2-CSHT-Comp63
Blue Crab	Hepatopancreas only	LPR1-CSHT-Comp09
Blue Crab	Hepatopancreas only	LPR3-CSHT-Comp64
Blue Crab	Hepatopancreas only	LPR2-CSHT-Comp21
Blue Crab	Hepatopancreas only	LPRX-CSHT-Comp65
Blue Crab	Hepatopancreas only	LPR8-CSHT-Comp66
Blue Crab	Muscle only	LPR7-CSMT-Comp52
Blue Crab	Muscle only	LPR1-CSMT-Comp08
Blue Crab	Muscle only	LPR1-CSMT-Comp10
Blue Crab	Muscle only	LPR1-CSMT-Comp12
Blue Crab	Muscle only	LPR2-CSMT-Comp16
Blue Crab	Muscle only	LPR6-CSMT-Comp39
Blue Crab	Muscle only	LPR2-CSMT-Comp22
Blue Crab	Muscle only	LPR2-CSMT-Comp23
Blue Crab	Muscle only	LPR6-CSMT-Comp40
Blue Crab	Muscle only	LPR3-CSMT-Comp25
Blue Crab	Muscle only	LPR6-CSMT-Comp43
Blue Crab	Muscle only	LPR3-CSMT-Comp29
Blue Crab	Muscle only	LPR5-CSMT-Comp36
Blue Crab	Muscle only	LPR7-CSMT-Comp47
Blue Crab	Muscle only	LPR7-CSMT-Comp51
Blue Crab	Muscle only	LPR8-CSMT-Comp59

Blue Crab	Muscle only	LPR8-CSMT-Comp60
Blue Crab	Muscle only	LPR8-CSMT-Comp62
Blue Crab	Muscle only	LPR1-CSMT-Comp05
Blue Crab	Muscle only	LPR1-CSMT-Comp09
Blue Crab	Muscle only	LPR2-CSMT-Comp21
Rinsate Blank		LPR-060810-RB
Northern pike	Fillet (with skin)	LPR6-ELFT-Ind001
Largemouth bass	Fillet (with skin)	LPR5-MSFT-Comp01
Largemouth bass	Fillet (with skin)	LPR8-MSFT-Ind002
Largemouth bass	Fillet (with skin)	LPR5-MSFT-Ind009
Smallmouth bass	Fillet (with skin)	LPR4-MDFT-Comp01
Smallmouth bass	Fillet (with skin)	LPR5-MDFT-Comp02
Smallmouth bass	Fillet (with skin)	LPR8-MDFT-Comp03
Northern pike	Carcass	LPR6-ELCT-Ind001
Largemouth bass	Carcass	LPR5-MSCT-Comp01
Largemouth bass	Carcass	LPR8-MSCT-Ind002
Largemouth bass	Carcass	LPR5-MSCT-Ind009
Smallmouth bass	Carcass	LPR4-MDCT-Comp01
Smallmouth bass	Carcass	LPR5-MDCT-Comp02
Smallmouth bass	Carcass	LPR8-MDCT-Comp03
Rinsate Blank		LPR-061510-RB
Carp	Fillet (with skin)	LPR3-CCFT-Ind001
Carp	Fillet (with skin)	LPR3-CCFT-Ind004
Carp	Fillet (with skin)	LPR6-CCFT-Ind032
Carp	Fillet (with skin)	LPR7-CCFT-Ind068
Carp	Fillet (with skin)	LPR7-CCFT-Ind092
Carp	Fillet (with skin)	LPR6-CCFT-Ind104
Carp	Fillet (with skin)	LPR8-CCFT-Ind121
Carp	Fillet (with skin)	LPR8-CCFT-Ind131
Carp	Fillet (with skin)	LPR4-CCFT-Ind155
Carp	Fillet (with skin)	LPR4-CCFT-Ind156
Carp	Fillet (with skin)	LPR5-CCFT-Ind181
Carp	Fillet (with skin)	LPR5-CCFT-Ind184
Carp	Whole body	LPR4-CCWB-Ind175
Carp	Whole body	LPR4-CCWB-Ind186
Brown Bullhead	Whole body	LPR3-ANWB-Ind001
Brown Bullhead	Whole body	LPR6-ANWB-Ind004
Brown Bullhead	Whole body	LPR4-ANWB-Ind007
Brown Bullhead	Whole body	LPR6-ANWB-Ind003
Brown Bullhead	Whole body	LPR6-ANWB-Ind005
Brown Bullhead	Whole body	LPR7-ANWB-Ind006
Carp	Whole body	LPR3-CCWB-Ind002
Carp	Whole body	LPR3-CCWB-Ind005
Carp	Whole body	LPR5-CCWB-Ind011
Carp	Whole body	LPR6-CCWB-Ind021
Carp	Whole body	LPR6-CCWB-Ind028

Carp	Whole body	LPR7-CCWB-Ind042
Carp	Whole body	LPR7-CCWB-Ind069
Carp	Whole body	LPR8-CCWB-Ind139
Carp	Whole body	LPR8-CCWB-Ind147
Carp	Whole body	LPR5-CCWB-Ind160
Rinsate Blank		LPR-062910-RB
White sucker	Fillet (with skin)	LPR8-WSFT-Ind009
White sucker	Fillet (with skin)	LPR8-WSFT-Ind013
White sucker	Fillet (with skin)	LPR5-WSFT-Ind019
White sucker	Fillet (with skin)	LPR5-WSFT-Ind020
White sucker	Fillet (with skin)	LPR4-WSFT-Ind023
Channel catfish	Fillet (skinless)	LPR5-IPFT-Ind001
Channel catfish	Fillet (skinless)	LPR6-IPFT-Ind003
Channel catfish	Fillet (skinless)	LPR6-IPFT-Ind004
Channel catfish	Fillet (skinless)	LPR7-IPFT-Ind005
Channel catfish	Fillet (skinless)	LPR7-IPFT-Ind006
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind008
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind009
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind010
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind011
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind012
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind013
White catfish	Fillet (skinless)	LPR3-ACFT-Ind001
White catfish	Fillet (skinless)	LPR3-ACFT-Ind002
White catfish	Fillet (skinless)	LPR3-ACFT-Ind003
White catfish	Fillet (skinless)	LPR3-ACFT-Ind005
White catfish	Fillet (skinless)	LPR5-ACFT-Ind006
White catfish	Fillet (skinless)	LPR6-ACFT-Ind008
White catfish	Fillet (skinless)	LPR6-ACFT-Ind009
White catfish	Fillet (skinless)	LPR6-ACFT-Ind010
White catfish	Fillet (skinless)	LPR6-ACFT-Ind013
White catfish	Fillet (skinless)	LPR7-ACFT-Ind014
White catfish	Fillet (skinless)	LPR6-ACFT-Ind016
White catfish	Fillet (skinless)	LPR7-ACFT-Ind017
White catfish	Fillet (skinless)	LPR2-ACFT-Ind018
White catfish	Fillet (skinless)	LPR8-ACFT-Ind019
White catfish	Fillet (skinless)	LPR8-ACFT-Ind020
White catfish	Fillet (skinless)	LPR8-ACFT-Ind021
White catfish	Fillet (skinless)	LPR8-ACFT-Ind022
White catfish	Fillet (skinless)	LPR4-ACFT-Ind023
White catfish	Fillet (skinless)	LPR5-ACFT-Ind024
White sucker	Carcass	LPR8-WSCT-Ind009
White sucker	Carcass	LPR8-WSCT-Ind013
White sucker	Carcass	LPR5-WSCT-Ind019
White sucker	Carcass	LPR5-WSCT-Ind020
White sucker	Carcass	LPR4-WSCT-Ind023

Channel catfish	Carcass	LPR5-IPCT-Ind001
Channel catfish	Carcass	LPR6-IPCT-Ind003
Channel catfish	Carcass	LPR6-IPCT-Ind004
Channel catfish	Carcass	LPR7-IPCT-Ind005
Channel catfish	Carcass	LPR7-IPCT-Ind006
Channel catfish	Carcass	LPR8-IPCT-Ind008
Channel catfish	Carcass	LPR8-IPCT-Ind009
Channel catfish	Carcass	LPR8-IPCT-Ind010
Channel catfish	Carcass	LPR8-IPCT-Ind011
Channel catfish	Carcass	LPR8-IPCT-Ind012
Channel catfish	Carcass	LPR8-IPCT-Ind013
White catfish	Carcass	LPR3-ACCT-Ind001
White catfish	Carcass	LPR3-ACCT-Ind002
White catfish	Carcass	LPR3-ACCT-Ind003
White catfish	Carcass	LPR3-ACCT-Ind005
White catfish	Carcass	LPR5-ACCT-Ind006
White catfish	Carcass	LPR6-ACCT-Ind008
White catfish	Carcass	LPR6-ACCT-Ind009
White catfish	Carcass	LPR6-ACCT-Ind010
White catfish	Carcass	LPR6-ACCT-Ind013
White catfish	Carcass	LPR7-ACCT-Ind014
White catfish	Carcass	LPR6-ACCT-Ind016
White catfish	Carcass	LPR7-ACCT-Ind017
White catfish	Carcass	LPR2-ACCT-Ind018
White catfish	Carcass	LPR8-ACCT-Ind019
White catfish	Carcass	LPR8-ACCT-Ind020
White catfish	Carcass	LPR8-ACCT-Ind021
White catfish	Carcass	LPR8-ACCT-Ind022
White catfish	Carcass	LPR4-ACCT-Ind023
White catfish	Carcass	LPR5-ACCT-Ind024

Rinsate Blank		LPR-071310-RB
White perch	Fillet (with skin)	LPR3-MAFT-Comp02
White perch	Fillet (with skin)	LPR3-MAFT-Comp03
White perch	Fillet (with skin)	LPR3-MAFT-Comp04
White perch	Fillet (with skin)	LPR3-MAFT-Comp05
White perch	Fillet (with skin)	LPR3-MAFT-Comp07
White perch	Fillet (with skin)	LPR3-MAFT-Comp08
White perch	Fillet (with skin)	LPR3-MAFT-Comp13
White perch	Fillet (with skin)	LPR6-MAFT-Comp24
White perch	Fillet (with skin)	LPR6-MAFT-Ind122
White perch	Fillet (with skin)	LPR1-MAFT-Comp01
White perch	Fillet (with skin)	LPR8-MAFT-Comp26
White perch	Fillet (with skin)	LPR8-MAFT-Comp31
White perch	Fillet (with skin)	LPR8-MAFT-Comp27
White perch	Fillet (with skin)	LPR5-MAFT-Comp20
White perch	Fillet (with skin)	LPR5-MAFT-Comp21
White perch	Fillet (with skin)	LPR5-MAFT-Comp22
White perch	Fillet (with skin)	LPR4-MAFT-Comp16

White perch	Fillet (with skin)	LPR4-MAFT-Comp17
White perch	Fillet (with skin)	LPR1-MAFT-Ind145
White perch	Carcass	LPR1-MACT-Ind145
White perch	Whole body	LPR3-MAWB-Comp06
White perch	Whole body	LPR3-MAWB-Comp09
White perch	Whole body	LPR3-MAWB-Comp10
White perch	Whole body	LPR3-MAWB-Comp11
White perch	Whole body	LPR3-MAWB-Comp12
White perch	Whole body	LPR3-MAWB-Comp30
White perch	Whole body	LPR7-MAWB-Ind123
White perch	Whole body	LPR7-MAWB-Comp25
White perch	Whole body	LPR6-MAWB-Ind128
White perch	Whole body	LPR1-MAWB-Ind138
White perch	Whole body	LPR2-MAWB-Ind158
White perch	Whole body	LPR8-MAWB-Comp32
White perch	Whole body	LPR8-MAWB-Comp28
White perch	Whole body	LPR8-MAWB-Comp29
White perch	Whole body	LPR4-MAWB-Comp14
White perch	Whole body	LPR5-MAWB-Comp19
White perch	Whole body	LPR5-MAWB-Comp18
White perch	Whole body	LPR5-MAWB-Comp23
White perch	Whole body	LPR4-MAWB-Comp15
Rinsate Blank		LPR-071910-RB
American eel	Fillet (skinless)	LPR3-ARFT-Comp20
American eel	Fillet (skinless)	LPR3-ARFT-Comp06
American eel	Fillet (skinless)	LPR3-ARFT-Ind005
American eel	Fillet (skinless)	LPR3-ARFT-Comp05
American eel	Fillet (skinless)	LPR3-ARFT-Ind010
American eel	Fillet (skinless)	LPR3-ARFT-Ind014
American eel	Fillet (skinless)	LPR5-ARFT-Comp09
American eel	Fillet (skinless)	LPR5-ARFT-Ind021
American eel	Fillet (skinless)	LPR4-ARFT-Ind022
American eel	Fillet (skinless)	LPR4-ARFT-Ind026
American eel	Fillet (skinless)	LPR5-ARFT-Comp12
American eel	Fillet (skinless)	LPR5-ARFT-Ind030
American eel	Fillet (skinless)	LPR4-ARFT-Comp07
American eel	Fillet (skinless)	LPR4-ARFT-Ind034
American eel	Fillet (skinless)	LPR5-ARFT-Comp10
American eel	Fillet (skinless)	LPR5-ARFT-Ind040
American eel	Fillet (skinless)	LPR4-ARFT-Comp08
American eel	Fillet (skinless)	LPR4-ARFT-Ind044
American eel	Fillet (skinless)	LPR5-ARFT-Ind049
American eel	Fillet (skinless)	LPR5-ARFT-Ind048
American eel	Fillet (skinless)	LPR6-ARFT-Ind065
American eel	Fillet (skinless)	LPR7-ARFT-Ind071
American eel	Fillet (skinless)	LPR6-ARFT-Ind073
American eel	Fillet (skinless)	LPR1-ARFT-Comp01

American eel	Fillet (skinless)	LPR1-ARFT-Comp02
American eel	Fillet (skinless)	LPR5-ARFT-Ind086
American eel	Fillet (skinless)	LPR8-ARFT-Comp17
American eel	Fillet (skinless)	LPR8-ARFT-Comp21
American eel	Fillet (skinless)	LPR8-ARFT-Comp22
American eel	Fillet (skinless)	LPR8-ARFT-Comp14
American eel	Fillet (skinless)	LPR2-ARFT-Comp04
American eel	Fillet (skinless)	LPR1-ARFT-Ind085
American eel	Carcass	LPR2-ARCT-Comp04
American eel	Carcass	LPR1-ARCT-Ind085
American eel	Whole body	LPR3-ARWB-Ind001
American eel	Whole body	LPR3-ARWB-Ind009
American eel	Whole body	LPR3-ARWB-Ind012
American eel	Whole body	LPR4-ARWB-Ind024
American eel	Whole body	LPR4-ARWB-Ind025
American eel	Whole body	LPR5-ARWB-Ind039
American eel	Whole body	LPR4-ARWB-Ind043
American eel	Whole body	LPR5-ARWB-Comp11
American eel	Whole body	LPR4-ARWB-Ind060
American eel	Whole body	LPR5-ARWB-Ind062
American eel	Whole body	LPR7-ARWB-Ind070
American eel	Whole body	LPR6-ARWB-Ind069
American eel	Whole body	LPR6-ARWB-Ind074
American eel	Whole body	LPR1-ARWB-Comp03
American eel	Whole body	LPR8-ARWB-Comp16
American eel	Whole body	LPR8-ARWB-Comp15
American eel	Whole body	LPR8-ARWB-Comp18
American eel	Whole body	LPR8-ARWB-Comp13
American eel	Whole body	LPR8-ARWB-Comp19

SDG	Lab ID	Methyl mercury (1630)
1013010	1013010-01	X
1013010	1013010-02	X
1013010	1013010-03	X
1013010	1013010-04	X
1013010	1013010-05	X
1013010	1013010-06	X
1013010	1013010-07	X
1013010	1013010-08	X
1013010	1013010-09	X
1013010	1013010-10	X
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1013010	1013010-17	X
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1013010	1013010-21	X
1013010	1013010-22	X
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1015017	1015017-16	X
1015017	1015017-17	X
1015017	1015017-18	X
1015017	1015017-19	X
1015017	1015017-20	X

1015017	1015017-21	x
1015017	1015017-22	x
1015017	1015017-23	x
1015017	1015017-24	x
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1015017	1015017-35	x
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1015017	1015017-37	x
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1015017	1015017-29	x
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1015017	1015017-32	x
1015017	1015017-33	x

1016012	1016012-01	x
1016012	1016012-02	x
1016012	1016012-03	x
1016012	1016012-04	x
1016012	1016012-05	x
1016012	1016012-06	x
1016012	1016012-07	x
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1016012	1016012-27	X
1016012	1016012-28	X
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1024008	1024008-01	X
1024008	1024008-02	X
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1024008	1024008-13	X
1024008	1024008-14	X
1024008	1024008-15	X

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1025019	1025019-03	X
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1025019	1025019-06	X
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1025019	1025019-30	x
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1029029	1029029-01	X
1029029	1029029-02	X
1029029	1029029-03	X
1029029	1029029-04	X
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1030013	1030013-50	X
1030013	1030013-51	X
1030013	1030013-52	X
1030013	1030013-53	X
1030013	1030013-54	X

[illegible]

2009 Fish and Blue Crab Tissue Chemistry Data for the LPRSA

Appendix D

Table D-4. 2009 SDGs, sample IDs, and analyses - CAS, Kelso

FINAL

Species	Tissue Type	LPR ID
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp37
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp38
Blue Crab	Muscle/hepatopancreas	LPR4-CSMH-Comp31
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp41
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp42
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp44
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp45
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp46
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp49
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp53
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp61
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp48
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp54
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp50
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp55
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp56
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp57
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp01
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp02
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp03
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp04
Rinsate Blank		LPR-032310-RB
Rinsate Blank		LPR-041210-RB
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp58
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp06
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp07
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp11
Blue Crab	Muscle/hepatopancreas	LPR4-CSMH-Comp30
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp13

Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp14
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp17
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp15
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp18
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp19
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp20
Blue Crab	Muscle/hepatopancreas	LPR3-CSMH-Comp24
Blue Crab	Muscle/hepatopancreas	LPR5-CSMH-Comp34
Blue Crab	Muscle/hepatopancreas	LPR3-CSMH-Comp26
Blue Crab	Muscle/hepatopancreas	LPR4-CSMH-Comp32
Blue Crab	Muscle/hepatopancreas	LPR4-CSMH-Comp33
Blue Crab	Muscle/hepatopancreas	LPR3-CSMH-Comp27
Blue Crab	Muscle/hepatopancreas	LPR3-CSMH-Comp28
Blue Crab	Muscle/hepatopancreas	LPR5-CSMH-Comp35

Blue Crab	Carcass	LPR4-CSCT-Comp31
Blue Crab	Carcass	LPR1-CSCT-Comp01
Blue Crab	Carcass	LPR1-CSCT-Comp02
Blue Crab	Carcass	LPR1-CSCT-Comp03
Blue Crab	Carcass	LPR1-CSCT-Comp04
Blue Crab	Carcass	LPR1-CSCT-Comp06
Blue Crab	Carcass	LPR1-CSCT-Comp07
Blue Crab	Carcass	LPR1-CSCT-Comp11
Blue Crab	Carcass	LPR4-CSCT-Comp30
Blue Crab	Carcass	LPR1-CSCT-Comp13
Blue Crab	Carcass	LPR2-CSCT-Comp14
Blue Crab	Carcass	LPR2-CSCT-Comp17
Blue Crab	Carcass	LPR2-CSCT-Comp15
Blue Crab	Carcass	LPR2-CSCT-Comp18
Blue Crab	Carcass	LPR2-CSCT-Comp19
Blue Crab	Carcass	LPR2-CSCT-Comp20
Blue Crab	Carcass	LPR3-CSCT-Comp24
Blue Crab	Carcass	LPR5-CSCT-Comp34
Blue Crab	Carcass	LPR3-CSCT-Comp26
Blue Crab	Carcass	LPR4-CSCT-Comp32
Blue Crab	Carcass	LPR4-CSCT-Comp33
Blue Crab	Carcass	LPR3-CSCT-Comp27

Blue Crab	Carcass	LPR3-CSCT-Comp28
Blue Crab	Carcass	LPR5-CSCT-Comp35
Blue Crab	Muscle only	LPR7-CSMT-Comp52
Blue Crab	Muscle only	LPR1-CSMT-Comp08
Blue Crab	Muscle only	LPR1-CSMT-Comp10
Blue Crab	Muscle only	LPR1-CSMT-Comp12
Blue Crab	Muscle only	LPR2-CSMT-Comp16
Blue Crab	Muscle only	LPR6-CSMT-Comp39
Blue Crab	Muscle only	LPR2-CSMT-Comp22
Blue Crab	Muscle only	LPR2-CSMT-Comp23
Blue Crab	Muscle only	LPR6-CSMT-Comp40
Blue Crab	Muscle only	LPR3-CSMT-Comp25
Blue Crab	Muscle only	LPR6-CSMT-Comp43
Blue Crab	Muscle only	LPR3-CSMT-Comp29
Blue Crab	Muscle only	LPR5-CSMT-Comp36
Blue Crab	Muscle only	LPR7-CSMT-Comp47
Blue Crab	Muscle only	LPR7-CSMT-Comp51
Blue Crab	Muscle only	LPR8-CSMT-Comp59
Blue Crab	Muscle only	LPR8-CSMT-Comp60
Blue Crab	Muscle only	LPR8-CSMT-Comp62
Blue Crab	Muscle only	LPR1-CSMT-Comp05
Blue Crab	Muscle only	LPR1-CSMT-Comp09
Blue Crab	Muscle only	LPR2-CSMT-Comp21
Blue Crab	Hepatopancreas only	LPR1-CSHT-Comp05
Blue Crab	Hepatopancreas only	LPR2-CSHT-Comp63
Blue Crab	Hepatopancreas only	LPR1-CSHT-Comp09
Blue Crab	Hepatopancreas only	LPR3-CSHT-Comp64
Blue Crab	Hepatopancreas only	LPR2-CSHT-Comp21
Blue Crab	Hepatopancreas only	LPRX-CSHT-Comp65
Blue Crab	Hepatopancreas only	LPR8-CSHT-Comp66
Mummichog	Egg tissue	LPR2-FHET-Comp01
Mummichog	Egg tissue	LPR2-FHET-Comp02
Mummichog	Egg tissue	LPR2-FHET-Comp03
Mummichog	Egg tissue	LPR2-FHET-Comp04

Mummichog	Egg tissue	LPR2-FHET-Comp05
Mummichog	Egg tissue	LPR2-FHET-Comp06
Mummichog	Egg tissue	LPR2-FHET-Comp07
Mummichog	Egg tissue	LPR2-FHET-Comp08
Mummichog	Egg tissue	LPRX-FHET-Comp09
Mummichog	Egg tissue	LPR2-FHET-Comp10
Northern pike	Fillet (with skin)	LPR6-ELFT-Ind001
Largemouth bass	Fillet (with skin)	LPR5-MSFT-Comp01
Largemouth bass	Fillet (with skin)	LPR8-MSFT-Ind002
Largemouth bass	Fillet (with skin)	LPR5-MSFT-Ind009
Smallmouth bass	Fillet (with skin)	LPR4-MDFT-Comp01
Smallmouth bass	Fillet (with skin)	LPR5-MDFT-Comp02
Smallmouth bass	Fillet (with skin)	LPR8-MDFT-Comp03
Northern pike	Carcass	LPR6-ELCT-Ind001
Largemouth bass	Carcass	LPR5-MSCT-Comp01
Largemouth bass	Carcass	LPR8-MSCT-Ind002
Largemouth bass	Carcass	LPR5-MSCT-Ind009
Smallmouth bass	Carcass	LPR4-MDCT-Comp01
Smallmouth bass	Carcass	LPR5-MDCT-Comp02
Smallmouth bass	Carcass	LPR8-MDCT-Comp03
Rinsate Blank		LPR-061510-RB
Carp	Whole body	LPR3-CCWB-Ind002
Carp	Whole body	LPR3-CCWB-Ind005
Carp	Whole body	LPR5-CCWB-Ind011
Carp	Whole body	LPR6-CCWB-Ind021
Carp	Whole body	LPR6-CCWB-Ind028
Carp	Whole body	LPR7-CCWB-Ind042
Carp	Whole body	LPR7-CCWB-Ind069
Carp	Whole body	LPR8-CCWB-Ind139
Carp	Whole body	LPR8-CCWB-Ind147
Carp	Whole body	LPR5-CCWB-Ind160
Carp	Whole body	LPR4-CCWB-Ind175
Carp	Whole body	LPR4-CCWB-Ind186
Brown Bullhead	Whole body	LPR3-ANWB-Ind001
Brown Bullhead	Whole body	LPR6-ANWB-Ind004

Brown Bullhead	Whole body	LPR4-ANWB-Ind007
Brown Bullhead	Whole body	LPR6-ANWB-Ind003
Brown Bullhead	Whole body	LPR6-ANWB-Ind005
Brown Bullhead	Whole body	LPR7-ANWB-Ind006

Carp	Fillet (with skin)	LPR3-CCFT-Ind001
Carp	Fillet (with skin)	LPR3-CCFT-Ind004
Carp	Fillet (with skin)	LPR6-CCFT-Ind032
Carp	Fillet (with skin)	LPR7-CCFT-Ind068
Carp	Fillet (with skin)	LPR7-CCFT-Ind092
Carp	Fillet (with skin)	LPR6-CCFT-Ind104
Carp	Fillet (with skin)	LPR8-CCFT-Ind121
Carp	Fillet (with skin)	LPR8-CCFT-Ind131
Carp	Fillet (with skin)	LPR4-CCFT-Ind155
Carp	Fillet (with skin)	LPR4-CCFT-Ind156
Carp	Fillet (with skin)	LPR5-CCFT-Ind181
Carp	Fillet (with skin)	LPR5-CCFT-Ind184

Rinsate Blank		LPR-060810-RB
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Rinsate Blank		LPR-062910-RB
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White perch	Carcass	LPR1-MACT-Ind145
White perch	Whole body	LPR3-MAWB-Comp06
White perch	Whole body	LPR3-MAWB-Comp09
White perch	Whole body	LPR3-MAWB-Comp10
White perch	Whole body	LPR3-MAWB-Comp11
White perch	Whole body	LPR3-MAWB-Comp12
White perch	Whole body	LPR3-MAWB-Comp30
White perch	Whole body	LPR7-MAWB-Ind123
White perch	Whole body	LPR7-MAWB-Comp25
White perch	Whole body	LPR6-MAWB-Ind128
White perch	Whole body	LPR1-MAWB-Ind138
White perch	Whole body	LPR2-MAWB-Ind158
White perch	Whole body	LPR8-MAWB-Comp32
White perch	Whole body	LPR8-MAWB-Comp28
White perch	Whole body	LPR8-MAWB-Comp29

White perch	Whole body	LPR4-MAWB-Comp14
White perch	Whole body	LPR5-MAWB-Comp19
White perch	Whole body	LPR5-MAWB-Comp18
White perch	Whole body	LPR5-MAWB-Comp23
White perch	Whole body	LPR4-MAWB-Comp15
White perch	Fillet (with skin)	LPR3-MAFT-Comp02
White perch	Fillet (with skin)	LPR3-MAFT-Comp03
White perch	Fillet (with skin)	LPR3-MAFT-Comp04
White perch	Fillet (with skin)	LPR3-MAFT-Comp05
White perch	Fillet (with skin)	LPR3-MAFT-Comp07
White perch	Fillet (with skin)	LPR3-MAFT-Comp08
White perch	Fillet (with skin)	LPR3-MAFT-Comp13
White perch	Fillet (with skin)	LPR6-MAFT-Comp24
White perch	Fillet (with skin)	LPR6-MAFT-Ind122
White perch	Fillet (with skin)	LPR1-MAFT-Comp01
White perch	Fillet (with skin)	LPR8-MAFT-Comp26
White perch	Fillet (with skin)	LPR8-MAFT-Comp31
White perch	Fillet (with skin)	LPR8-MAFT-Comp27
White perch	Fillet (with skin)	LPR5-MAFT-Comp20
White perch	Fillet (with skin)	LPR5-MAFT-Comp21
White perch	Fillet (with skin)	LPR5-MAFT-Comp22
White perch	Fillet (with skin)	LPR4-MAFT-Comp16
White perch	Fillet (with skin)	LPR4-MAFT-Comp17
White perch	Fillet (with skin)	LPR1-MAFT-Ind145
Rinsate Blank		LPR-071310-RB
White catfish	Carcass	LPR5-ACCT-Ind006
White catfish	Carcass	LPR6-ACCT-Ind008
White catfish	Carcass	LPR6-ACCT-Ind009
White catfish	Carcass	LPR6-ACCT-Ind010
White catfish	Carcass	LPR6-ACCT-Ind013
White catfish	Carcass	LPR7-ACCT-Ind014
White catfish	Carcass	LPR6-ACCT-Ind016
White catfish	Carcass	LPR7-ACCT-Ind017
White catfish	Carcass	LPR2-ACCT-Ind018
White catfish	Carcass	LPR8-ACCT-Ind019

White catfish	Carcass	LPR8-ACCT-Ind020
White catfish	Carcass	LPR8-ACCT-Ind021
White catfish	Carcass	LPR8-ACCT-Ind022
White catfish	Carcass	LPR4-ACCT-Ind023
White catfish	Carcass	LPR5-ACCT-Ind024
White sucker	Carcass	LPR8-WSCT-Ind009
White sucker	Carcass	LPR8-WSCT-Ind013
White sucker	Carcass	LPR5-WSCT-Ind019
White sucker	Carcass	LPR5-WSCT-Ind020
White sucker	Carcass	LPR4-WSCT-Ind023
Channel catfish	Carcass	LPR5-IPCT-Ind001
Channel catfish	Carcass	LPR6-IPCT-Ind003
Channel catfish	Carcass	LPR6-IPCT-Ind004
Channel catfish	Carcass	LPR7-IPCT-Ind005
Channel catfish	Carcass	LPR7-IPCT-Ind006
Channel catfish	Carcass	LPR8-IPCT-Ind008
Channel catfish	Carcass	LPR8-IPCT-Ind009
Channel catfish	Carcass	LPR8-IPCT-Ind010
Channel catfish	Carcass	LPR8-IPCT-Ind011
Channel catfish	Carcass	LPR8-IPCT-Ind012
Channel catfish	Carcass	LPR8-IPCT-Ind013
White catfish	Carcass	LPR3-ACCT-Ind001
White catfish	Carcass	LPR3-ACCT-Ind002
White catfish	Carcass	LPR3-ACCT-Ind003
White catfish	Carcass	LPR3-ACCT-Ind005
White catfish	Fillet (skinless)	LPR5-ACFT-Ind006
White catfish	Fillet (skinless)	LPR6-ACFT-Ind008
White catfish	Fillet (skinless)	LPR6-ACFT-Ind009
White catfish	Fillet (skinless)	LPR6-ACFT-Ind010
White catfish	Fillet (skinless)	LPR6-ACFT-Ind013
White catfish	Fillet (skinless)	LPR7-ACFT-Ind014
White catfish	Fillet (skinless)	LPR6-ACFT-Ind016
White catfish	Fillet (skinless)	LPR7-ACFT-Ind017
White catfish	Fillet (skinless)	LPR2-ACFT-Ind018
White catfish	Fillet (skinless)	LPR8-ACFT-Ind019

White catfish	Fillet (skinless)	LPR8-ACFT-Ind020
White catfish	Fillet (skinless)	LPR8-ACFT-Ind021
White catfish	Fillet (skinless)	LPR8-ACFT-Ind022
White catfish	Fillet (skinless)	LPR4-ACFT-Ind023
White catfish	Fillet (skinless)	LPR5-ACFT-Ind024
White sucker	Fillet (with skin)	LPR8-WSFT-Ind009
White sucker	Fillet (with skin)	LPR8-WSFT-Ind013
White sucker	Fillet (with skin)	LPR5-WSFT-Ind019
White sucker	Fillet (with skin)	LPR5-WSFT-Ind020
White sucker	Fillet (with skin)	LPR4-WSFT-Ind023
Channel catfish	Fillet (skinless)	LPR5-IPFT-Ind001
Channel catfish	Fillet (skinless)	LPR6-IPFT-Ind003
Channel catfish	Fillet (skinless)	LPR6-IPFT-Ind004
Channel catfish	Fillet (skinless)	LPR7-IPFT-Ind005
Channel catfish	Fillet (skinless)	LPR7-IPFT-Ind006
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind008
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind009
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind010
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind011
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind012
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind013
White catfish	Fillet (skinless)	LPR3-ACFT-Ind001
White catfish	Fillet (skinless)	LPR3-ACFT-Ind002
White catfish	Fillet (skinless)	LPR3-ACFT-Ind003
White catfish	Fillet (skinless)	LPR3-ACFT-Ind005
Rinsate Blank		LPR-071910-RB
American eel	Fillet (skinless)	LPR3-ARFT-Comp20
American eel	Fillet (skinless)	LPR3-ARFT-Comp06
American eel	Fillet (skinless)	LPR3-ARFT-Ind005
American eel	Fillet (skinless)	LPR3-ARFT-Comp05
American eel	Fillet (skinless)	LPR3-ARFT-Ind010
American eel	Fillet (skinless)	LPR3-ARFT-Ind014
American eel	Fillet (skinless)	LPR5-ARFT-Comp09
American eel	Fillet (skinless)	LPR5-ARFT-Ind021
American eel	Fillet (skinless)	LPR4-ARFT-Ind022

American eel	Fillet (skinless)	LPR4-ARFT-Ind026
American eel	Fillet (skinless)	LPR5-ARFT-Comp12
American eel	Fillet (skinless)	LPR5-ARFT-Ind030
American eel	Fillet (skinless)	LPR4-ARFT-Comp07
American eel	Fillet (skinless)	LPR4-ARFT-Ind034
American eel	Fillet (skinless)	LPR5-ARFT-Comp10
American eel	Fillet (skinless)	LPR5-ARFT-Ind040
American eel	Fillet (skinless)	LPR4-ARFT-Comp08
American eel	Fillet (skinless)	LPR4-ARFT-Ind044
American eel	Fillet (skinless)	LPR5-ARFT-Ind049
American eel	Fillet (skinless)	LPR5-ARFT-Ind048
American eel	Fillet (skinless)	LPR6-ARFT-Ind065
American eel	Fillet (skinless)	LPR7-ARFT-Ind071
American eel	Fillet (skinless)	LPR6-ARFT-Ind073
American eel	Fillet (skinless)	LPR1-ARFT-Comp01
American eel	Fillet (skinless)	LPR1-ARFT-Comp02
American eel	Fillet (skinless)	LPR5-ARFT-Ind086
American eel	Fillet (skinless)	LPR8-ARFT-Comp17
American eel	Fillet (skinless)	LPR8-ARFT-Comp21
American eel	Fillet (skinless)	LPR8-ARFT-Comp22
American eel	Fillet (skinless)	LPR8-ARFT-Comp14
American eel	Fillet (skinless)	LPR2-ARFT-Comp04
American eel	Fillet (skinless)	LPR1-ARFT-Ind085
American eel	Carcass	LPR2-ARCT-Comp04
American eel	Carcass	LPR1-ARCT-Ind085
American eel	Whole body	LPR3-ARWB-Ind001
American eel	Whole body	LPR3-ARWB-Ind009
American eel	Whole body	LPR3-ARWB-Ind012
American eel	Whole body	LPR4-ARWB-Ind024
American eel	Whole body	LPR4-ARWB-Ind025
American eel	Whole body	LPR5-ARWB-Ind039
American eel	Whole body	LPR4-ARWB-Ind043
American eel	Whole body	LPR5-ARWB-Comp11
American eel	Whole body	LPR4-ARWB-Ind060
American eel	Whole body	LPR5-ARWB-Ind062

American eel	Whole body	LPR7-ARWB-Ind070
American eel	Whole body	LPR6-ARWB-Ind069
American eel	Whole body	LPR6-ARWB-Ind074
American eel	Whole body	LPR1-ARWB-Comp03
American eel	Whole body	LPR8-ARWB-Comp16
American eel	Whole body	LPR8-ARWB-Comp15
American eel	Whole body	LPR8-ARWB-Comp18
American eel	Whole body	LPR8-ARWB-Comp13
American eel	Whole body	LPR8-ARWB-Comp19

SDG	Lab ID	Lipids (Bligh-Dyer)	Butyltins (Krone)	Metals (ICP,6010B)	Metals (ICP/MS, 6020)	Metals (Se, 7742)
K1002762	K1002762-001	x	x	x	x	x
K1002762	K1002762-002	x	x	x	x	x
K1002762	K1002762-003	x	x	x	x	x
K1002762	K1002762-004	x	x	x	x	x
K1002762	K1002762-005	x	x	x	x	x
K1002762	K1002762-006	x	x	x	x	x
K1002762	K1002762-007	x	x	x	x	x
K1002762	K1002762-008	x	x	x	x	x
K1002762	K1002762-009	x	x	x	x	x
K1002762	K1002762-010	x	x	x	x	x
K1002762	K1002762-011	x	x	x	x	x
K1002762	K1002762-012	x	x	x	x	x
K1002762	K1002762-013	x	x	x	x	x
K1002762	K1002762-014	x	x	x	x	x
K1002762	K1002762-015	x	x	x	x	x
K1002762	K1002762-016	x	x	x	x	x
K1002762	K1002762-017	x	x	x	x	x
K1002762	K1002762-018	x	x	x	x	x
K1002762	K1002762-019	x	x	x	x	x
K1002762	K1002762-020	x	x	x	x	x
K1002762	K1002762-021	x	x	x	x	x
K1002794	K1002794_001		x	x	x	x
K1002794	K1002794_002		x	x	x	x
K1003359	K1003359_001	x	x	x	x	x
K1003359	K1003359_002	x	x	x	x	x
K1003359	K1003359_003	x	x	x	x	x
K1003359	K1003359_004	x	x	x	x	x
K1003359	K1003359_005	x	x	x	x	x
K1003359	K1003359_006	x	x	x	x	x

K1003359	K1003359_007	x	x	x	x	x
K1003359	K1003359_008	x	x	x	x	x
K1003359	K1003359_009	x	x	x	x	x
K1003359	K1003359_010	x	x	x	x	x
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K1003357	K1003357_020	x	x	x	x	x
K1003357	K1003357_021	x	x	x	x	x
K1003357	K1003357_022	x	x	x	x	x

K1003357	K1003357_023	x	x	x	x	x
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K1003612	K1003612-001	x	x	x	x	x
K1003612	K1003612-002	x	x	x	x	x
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K1003612	K1003612-017	x	x	x	x	x
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K1003612	K1003612-020	x	x	x	x	x
K1003612	K1003612-021	x	x	x	x	x
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K1006040	K1006040-005	x
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K1006037	K1006037-003	x	x	x	x	x
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K1006240	K1006240_016	x	x	x	x	x
K1006240	K1006240_017	x	x	x	x	x
K1006240	K1006240_018	x	x	x	x	x
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K1006286	K1006286_01	x	x	x	x	x
K1006286	K1006286_02	x	x	x	x	x
K1006286	K1006286_03	x	x	x	x	x
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K1005940	K1005940_001		x	x	x	x
K1006741	K1006741-001		x	x	x	x
K1007274	K1007274-001	x	x	x	x	x
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K1007274	K1007274-012	x	x	x	x	x
K1007274	K1007274-013	x	x	x	x	x
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K1007274	K1007274-020	x	x	x	x	x
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K1007105	K1007105-010	x	x	x	x	x

K1007105	K1007105-011	x	x	x	x	x
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K1007105	K1007105-013	x	x	x	x	x
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K1007105	K1007105-015	x	x	x	x	x
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K1007103	K1007103-020	x	x	x	x	x
K1007102	K1007102-001	x	x	x	x	x
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K1007102	K1007102-003	x	x	x	x	x
K1007102	K1007102-004	x	x	x	x	x
K1007102	K1007102-005	x	x	x	x	x
K1007102	K1007102-006	x	x	x	x	x
K1007102	K1007102-007	x	x	x	x	x
K1007102	K1007102-008	x	x	x	x	x
K1007102	K1007102-009	x	x	x	x	x
K1007102	K1007102-010	x	x	x	x	x

K1007102	K1007102-011	x	x	x	x	x
K1007102	K1007102-012	x	x	x	x	x
K1007102	K1007102-013	x	x	x	x	x
K1007102	K1007102-014	x	x	x	x	x
K1007102	K1007102-015	x	x	x	x	x
K1007100	K1007100-001	x	x	x	x	x
K1007100	K1007100-002	x	x	x	x	x
K1007100	K1007100-003	x	x	x	x	x
K1007100	K1007100-004	x	x	x	x	x
K1007100	K1007100-005	x	x	x	x	x
K1007100	K1007100-006	x	x	x	x	x
K1007100	K1007100-007	x	x	x	x	x
K1007100	K1007100-008	x	x	x	x	x
K1007100	K1007100-009	x	x	x	x	x
K1007100	K1007100-010	x	x	x	x	x
K1007100	K1007100-011	x	x	x	x	x
K1007100	K1007100-012	x	x	x	x	x
K1007100	K1007100-013	x	x	x	x	x
K1007100	K1007100-014	x	x	x	x	x
K1007100	K1007100-015	x	x	x	x	x
K1007100	K1007100-016	x	x	x	x	x
K1007100	K1007100-017	x	x	x	x	x
K1007100	K1007100-018	x	x	x	x	x
K1007100	K1007100-019	x	x	x	x	x
K1007100	K1007100-020	x	x	x	x	x
K1007457	K1007457-001	x	x	x	x	x
K1007457	K1007457-002	x	x	x	x	x
K1007457	K1007457-003	x	x	x	x	x
K1007457	K1007457-004	x	x	x	x	x
K1007457	K1007457-005	x	x	x	x	x
K1007457	K1007457-006	x	x	x	x	x
K1007457	K1007457-007	x	x	x	x	x
K1007457	K1007457-008	x	x	x	x	x
K1007457	K1007457-009	x	x	x	x	x
K1007457	K1007457-010	x	x	x	x	x

K1007457	K1007457-011	x	x	x	x	x
K1007457	K1007457-012	x	x	x	x	x
K1007457	K1007457-013	x	x	x	x	x
K1007457	K1007457-014	x	x	x	x	x
K1007457	K1007457-015	x	x	x	x	x
K1007457	K1007457-016	x	x	x	x	x
K1007457	K1007457-017	x	x	x	x	x
K1007457	K1007457-018	x	x	x	x	x
K1007457	K1007457-019	x	x	x	x	x
K1007457	K1007457-020	x	x	x	x	x
K1007620	K1007620-001	x	x	x	x	x
K1007620	K1007620-002	x	x	x	x	x
K1007620	K1007620-003	x	x	x	x	x
K1007620	K1007620-004	x	x	x	x	x
K1007620	K1007620-005	x	x	x	x	x
K1007620	K1007620-006	x	x	x	x	x
K1007620	K1007620-007	x	x	x	x	x
K1007620	K1007620-008	x	x	x	x	x
K1007620	K1007620-009	x	x	x	x	x
K1007620	K1007620-010	x	x	x	x	x
K1007620	K1007620-011	x	x	x	x	x
K1007620	K1007620-012	x	x	x	x	x
K1007620	K1007620-013	x	x	x	x	x
K1007620	K1007620-014	x	x	x	x	x
K1007620	K1007620-015	x	x	x	x	x
K1007620	K1007620-016	x	x	x	x	x
K1007620	K1007620-017	x	x	x	x	x
K1007620	K1007620-018	x	x	x	x	x
K1007620	K1007620-019	x	x	x	x	x
K1007620	K1007620-020	x	x	x	x	x
K1007621	K1007621-001	x	x	x	x	x
K1007621	K1007621-002	x	x	x	x	x
K1007621	K1007621-003	x	x	x	x	x
K1007621	K1007621-004	x	x	x	x	x
K1007621	K1007621-005	x	x	x	x	x

K1007621	K1007621-006	x	x	x	x	x
K1007621	K1007621-007	x	x	x	x	x
K1007621	K1007621-008	x	x	x	x	x
K1007621	K1007621-009	x	x	x	x	x
K1007621	K1007621-010	x	x	x	x	x
K1007621	K1007621-011	x	x	x	x	x
K1007621	K1007621-012	x	x	x	x	x
K1007621	K1007621-013	x	x	x	x	x
K1007621	K1007621-014	x	x	x	x	x

2009 Fish and Blue Crab Tissue Chemistry Data for the LPRSA

Appendix D

Table D-5. 2009 SDGs, sample IDs, and analyses - Maxxam Analytics

FINAL

Species	Tissue Type	LPR ID
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp37
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp38
Blue Crab	Muscle/hepatopancreas	LPR4-CSMH-Comp31
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp41
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp42
Blue Crab	Muscle/hepatopancreas	LPR6-CSMH-Comp44
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp45
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp46
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp49
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp53
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp61
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp48
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp54
Blue Crab	Muscle/hepatopancreas	LPR7-CSMH-Comp50
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp55
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp56
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp57
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp01
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp02
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp03
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp04
Rinsate Blank		LPR-032310-RB
Blue Crab	Muscle/hepatopancreas	LPR8-CSMH-Comp58
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp06
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp07
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp11
Blue Crab	Muscle/hepatopancreas	LPR4-CSMH-Comp30
Blue Crab	Muscle/hepatopancreas	LPR1-CSMH-Comp13
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp14
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp17
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp15
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp18

Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp19
Blue Crab	Muscle/hepatopancreas	LPR2-CSMH-Comp20
Blue Crab	Muscle/hepatopancreas	LPR3-CSMH-Comp24
Blue Crab	Muscle/hepatopancreas	LPR5-CSMH-Comp34
Blue Crab	Muscle/hepatopancreas	LPR3-CSMH-Comp26
Blue Crab	Muscle/hepatopancreas	LPR4-CSMH-Comp32
Blue Crab	Muscle/hepatopancreas	LPR4-CSMH-Comp33
Blue Crab	Muscle/hepatopancreas	LPR3-CSMH-Comp27
Blue Crab	Muscle/hepatopancreas	LPR3-CSMH-Comp28
Blue Crab	Muscle/hepatopancreas	LPR5-CSMH-Comp35

Blue Crab	Carcass	LPR4-CSCT-Comp31
Blue Crab	Carcass	LPR1-CSCT-Comp01
Blue Crab	Carcass	LPR1-CSCT-Comp02
Blue Crab	Carcass	LPR1-CSCT-Comp03
Blue Crab	Carcass	LPR1-CSCT-Comp04
Blue Crab	Carcass	LPR1-CSCT-Comp06
Blue Crab	Carcass	LPR1-CSCT-Comp07
Blue Crab	Carcass	LPR1-CSCT-Comp11
Blue Crab	Carcass	LPR4-CSCT-Comp30
Blue Crab	Carcass	LPR1-CSCT-Comp13
Blue Crab	Carcass	LPR2-CSCT-Comp14
Blue Crab	Carcass	LPR2-CSCT-Comp17
Blue Crab	Carcass	LPR2-CSCT-Comp15
Blue Crab	Carcass	LPR2-CSCT-Comp18
Blue Crab	Carcass	LPR2-CSCT-Comp19
Blue Crab	Carcass	LPR2-CSCT-Comp20
Blue Crab	Carcass	LPR3-CSCT-Comp24
Blue Crab	Carcass	LPR5-CSCT-Comp34
Blue Crab	Carcass	LPR3-CSCT-Comp26
Blue Crab	Carcass	LPR4-CSCT-Comp32
Blue Crab	Carcass	LPR4-CSCT-Comp33
Blue Crab	Carcass	LPR3-CSCT-Comp27
Blue Crab	Carcass	LPR3-CSCT-Comp28
Blue Crab	Carcass	LPR5-CSCT-Comp35

Blue Crab	Muscle only	LPR7-CSMT-Comp52
Blue Crab	Muscle only	LPR1-CSMT-Comp08
Blue Crab	Muscle only	LPR1-CSMT-Comp10
Blue Crab	Muscle only	LPR1-CSMT-Comp12

Blue Crab	Muscle only	LPR2-CSMT-Comp16
Blue Crab	Muscle only	LPR6-CSMT-Comp39
Blue Crab	Muscle only	LPR2-CSMT-Comp22
Blue Crab	Muscle only	LPR2-CSMT-Comp23
Blue Crab	Muscle only	LPR6-CSMT-Comp40
Blue Crab	Muscle only	LPR3-CSMT-Comp25
Blue Crab	Muscle only	LPR6-CSMT-Comp43
Blue Crab	Muscle only	LPR3-CSMT-Comp29
Blue Crab	Muscle only	LPR5-CSMT-Comp36
Blue Crab	Muscle only	LPR7-CSMT-Comp47
Blue Crab	Muscle only	LPR7-CSMT-Comp51
Blue Crab	Muscle only	LPR8-CSMT-Comp59
Blue Crab	Muscle only	LPR8-CSMT-Comp60
Blue Crab	Muscle only	LPR8-CSMT-Comp62
Blue Crab	Muscle only	LPR1-CSMT-Comp05
Blue Crab	Muscle only	LPR1-CSMT-Comp09
Blue Crab	Muscle only	LPR2-CSMT-Comp21
Blue Crab	Hepatopancreas only	LPR1-CSHT-Comp05
Blue Crab	Hepatopancreas only	LPR2-CSHT-Comp63
Blue Crab	Hepatopancreas only	LPR1-CSHT-Comp09
Blue Crab	Hepatopancreas only	LPR3-CSHT-Comp64
Blue Crab	Hepatopancreas only	LPR2-CSHT-Comp21
Blue Crab	Hepatopancreas only	LPRX-CSHT-Comp65
Blue Crab	Hepatopancreas only	LPR8-CSHT-Comp66
Rinsate Blank		LPR-041210-RB
Northern pike	Fillet (with skin)	LPR6-ELFT-Ind001
Largemouth bass	Fillet (with skin)	LPR5-MSFT-Comp01
Largemouth bass	Fillet (with skin)	LPR8-MSFT-Ind002
Largemouth bass	Fillet (with skin)	LPR5-MSFT-Ind009
Smallmouth bass	Fillet (with skin)	LPR4-MDFT-Comp01
Smallmouth bass	Fillet (with skin)	LPR5-MDFT-Comp02
Smallmouth bass	Fillet (with skin)	LPR8-MDFT-Comp03
Northern pike	Carcass	LPR6-ELCT-Ind001
Largemouth bass	Carcass	LPR5-MSCT-Comp01
Largemouth bass	Carcass	LPR8-MSCT-Ind002
Largemouth bass	Carcass	LPR5-MSCT-Ind009
Smallmouth bass	Carcass	LPR4-MDCT-Comp01
Smallmouth bass	Carcass	LPR5-MDCT-Comp02

Smallmouth bass	Carcass	LPR8-MDCT-Comp03
Rinsate Blank		LPR-060810-RB
Carp	Whole body	LPR3-CCWB-Ind002
Carp	Whole body	LPR3-CCWB-Ind005
Carp	Whole body	LPR5-CCWB-Ind011
Carp	Whole body	LPR6-CCWB-Ind021
Carp	Whole body	LPR6-CCWB-Ind028
Carp	Whole body	LPR7-CCWB-Ind042
Carp	Whole body	LPR7-CCWB-Ind069
Carp	Whole body	LPR8-CCWB-Ind139
Carp	Whole body	LPR8-CCWB-Ind147
Carp	Whole body	LPR5-CCWB-Ind160
Carp	Whole body	LPR4-CCWB-Ind175
Carp	Whole body	LPR4-CCWB-Ind186
Brown Bullhead	Whole body	LPR3-ANWB-Ind001
Brown Bullhead	Whole body	LPR6-ANWB-Ind004
Brown Bullhead	Whole body	LPR4-ANWB-Ind007
Brown Bullhead	Whole body	LPR6-ANWB-Ind003
Brown Bullhead	Whole body	LPR6-ANWB-Ind005
Brown Bullhead	Whole body	LPR7-ANWB-Ind006
Rinsate Blank		LPR-061510-RB
Carp	Fillet (with skin)	LPR3-CCFT-Ind001
Carp	Fillet (with skin)	LPR3-CCFT-Ind004
Carp	Fillet (with skin)	LPR6-CCFT-Ind032
Carp	Fillet (with skin)	LPR7-CCFT-Ind068
Carp	Fillet (with skin)	LPR7-CCFT-Ind092
Carp	Fillet (with skin)	LPR6-CCFT-Ind104
Carp	Fillet (with skin)	LPR8-CCFT-Ind121
Carp	Fillet (with skin)	LPR8-CCFT-Ind131
Carp	Fillet (with skin)	LPR4-CCFT-Ind155
Carp	Fillet (with skin)	LPR4-CCFT-Ind156
Carp	Fillet (with skin)	LPR5-CCFT-Ind181
Carp	Fillet (with skin)	LPR5-CCFT-Ind184
Rinsate Blank		LPR-062910-RB
White sucker	Fillet (with skin)	LPR8-WSFT-Ind009
White sucker	Fillet (with skin)	LPR8-WSFT-Ind013

White sucker	Fillet (with skin)	LPR5-WSFT-Ind019
White sucker	Fillet (with skin)	LPR5-WSFT-Ind020
White sucker	Fillet (with skin)	LPR4-WSFT-Ind023
Channel catfish	Fillet (skinless)	LPR5-IPFT-Ind001
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind008
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind009
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind010
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind011
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind012
Channel catfish	Fillet (skinless)	LPR8-IPFT-Ind013
White catfish	Fillet (skinless)	LPR3-ACFT-Ind001
White catfish	Fillet (skinless)	LPR3-ACFT-Ind002
White catfish	Fillet (skinless)	LPR3-ACFT-Ind003
White catfish	Fillet (skinless)	LPR3-ACFT-Ind005
White catfish	Fillet (skinless)	LPR5-ACFT-Ind006
White catfish	Fillet (skinless)	LPR6-ACFT-Ind016
White catfish	Fillet (skinless)	LPR7-ACFT-Ind017
White catfish	Fillet (skinless)	LPR2-ACFT-Ind018
White catfish	Fillet (skinless)	LPR8-ACFT-Ind019
White catfish	Fillet (skinless)	LPR8-ACFT-Ind020
White catfish	Fillet (skinless)	LPR8-ACFT-Ind021
White catfish	Fillet (skinless)	LPR8-ACFT-Ind022
White catfish	Fillet (skinless)	LPR4-ACFT-Ind023
White catfish	Fillet (skinless)	LPR5-ACFT-Ind024

White sucker	Carcass	LPR8-WSCT-Ind009
White sucker	Carcass	LPR8-WSCT-Ind013
White sucker	Carcass	LPR5-WSCT-Ind019
White sucker	Carcass	LPR5-WSCT-Ind020
White sucker	Carcass	LPR4-WSCT-Ind023
Channel catfish	Carcass	LPR5-IPCT-Ind001
Channel catfish	Carcass	LPR6-IPCT-Ind003
Channel catfish	Carcass	LPR8-IPCT-Ind008
Channel catfish	Carcass	LPR8-IPCT-Ind009
Channel catfish	Carcass	LPR8-IPCT-Ind010
Channel catfish	Carcass	LPR8-IPCT-Ind011
Channel catfish	Carcass	LPR8-IPCT-Ind012
Channel catfish	Carcass	LPR8-IPCT-Ind013
White catfish	Carcass	LPR3-ACCT-Ind001
White catfish	Carcass	LPR3-ACCT-Ind002

White catfish	Carcass	LPR3-ACCT-Ind003
White catfish	Carcass	LPR3-ACCT-Ind005
White catfish	Carcass	LPR5-ACCT-Ind006
White catfish	Carcass	LPR6-ACCT-Ind008
White catfish	Carcass	LPR6-ACCT-Ind009
White catfish	Carcass	LPR6-ACCT-Ind016
White catfish	Carcass	LPR7-ACCT-Ind017
White catfish	Carcass	LPR2-ACCT-Ind018
White catfish	Carcass	LPR8-ACCT-Ind019
White catfish	Carcass	LPR8-ACCT-Ind020
White catfish	Carcass	LPR8-ACCT-Ind021
White catfish	Carcass	LPR8-ACCT-Ind022
White catfish	Carcass	LPR4-ACCT-Ind023
White catfish	Carcass	LPR5-ACCT-Ind024

White perch	Fillet (with skin)	LPR3-MAFT-Comp02
White perch	Fillet (with skin)	LPR3-MAFT-Comp03
White perch	Fillet (with skin)	LPR3-MAFT-Comp04
White perch	Fillet (with skin)	LPR3-MAFT-Comp05
White perch	Fillet (with skin)	LPR3-MAFT-Comp07
White perch	Fillet (with skin)	LPR3-MAFT-Comp08
White perch	Fillet (with skin)	LPR3-MAFT-Comp13
White perch	Fillet (with skin)	LPR1-MAFT-Comp01
White perch	Fillet (with skin)	LPR8-MAFT-Comp26
White perch	Fillet (with skin)	LPR8-MAFT-Comp31
White perch	Fillet (with skin)	LPR8-MAFT-Comp27
White perch	Fillet (with skin)	LPR5-MAFT-Comp20
White perch	Fillet (with skin)	LPR5-MAFT-Comp21
White perch	Fillet (with skin)	LPR5-MAFT-Comp22
White perch	Fillet (with skin)	LPR4-MAFT-Comp16
White perch	Fillet (with skin)	LPR4-MAFT-Comp17
White perch	Fillet (with skin)	LPR1-MAFT-Ind145
Rinsate Blank		LPR-071310-RB

White perch	Carcass	LPR1-MACT-Ind145
White perch	Whole body	LPR3-MAWB-Comp06
White perch	Whole body	LPR3-MAWB-Comp09
White perch	Whole body	LPR3-MAWB-Comp10
White perch	Whole body	LPR3-MAWB-Comp11
White perch	Whole body	LPR3-MAWB-Comp12

White perch	Whole body	LPR3-MAWB-Comp30
White perch	Whole body	LPR6-MAWB-Ind128
White perch	Whole body	LPR1-MAWB-Ind138
White perch	Whole body	LPR2-MAWB-Ind158
White perch	Whole body	LPR8-MAWB-Comp32
White perch	Whole body	LPR8-MAWB-Comp28
White perch	Whole body	LPR8-MAWB-Comp29
White perch	Whole body	LPR4-MAWB-Comp14
White perch	Whole body	LPR5-MAWB-Comp19
White perch	Whole body	LPR5-MAWB-Comp18
White perch	Whole body	LPR5-MAWB-Comp23
White perch	Whole body	LPR4-MAWB-Comp15

American eel	Fillet (skinless)	LPR3-ARFT-Comp20
American eel	Fillet (skinless)	LPR3-ARFT-Comp06
American eel	Fillet (skinless)	LPR3-ARFT-Ind005
American eel	Fillet (skinless)	LPR3-ARFT-Comp05
American eel	Fillet (skinless)	LPR3-ARFT-Ind010
American eel	Fillet (skinless)	LPR3-ARFT-Ind014
American eel	Fillet (skinless)	LPR5-ARFT-Comp09
American eel	Fillet (skinless)	LPR5-ARFT-Ind021
American eel	Fillet (skinless)	LPR4-ARFT-Ind022
American eel	Fillet (skinless)	LPR4-ARFT-Ind026
American eel	Fillet (skinless)	LPR5-ARFT-Comp12
American eel	Fillet (skinless)	LPR5-ARFT-Ind030
American eel	Fillet (skinless)	LPR4-ARFT-Comp07
American eel	Fillet (skinless)	LPR4-ARFT-Ind034
American eel	Fillet (skinless)	LPR5-ARFT-Comp10
American eel	Fillet (skinless)	LPR5-ARFT-Ind040
American eel	Fillet (skinless)	LPR4-ARFT-Comp08
American eel	Fillet (skinless)	LPR4-ARFT-Ind044
American eel	Fillet (skinless)	LPR5-ARFT-Ind049
American eel	Fillet (skinless)	LPR5-ARFT-Ind048
American eel	Fillet (skinless)	LPR7-ARFT-Ind071
American eel	Fillet (skinless)	LPR6-ARFT-Ind073
American eel	Fillet (skinless)	LPR1-ARFT-Comp01
American eel	Fillet (skinless)	LPR1-ARFT-Comp02
American eel	Fillet (skinless)	LPR5-ARFT-Ind086
American eel	Fillet (skinless)	LPR8-ARFT-Comp17
American eel	Fillet (skinless)	LPR8-ARFT-Comp21

American eel	Fillet (skinless)	LPR8-ARFT-Comp22
American eel	Fillet (skinless)	LPR8-ARFT-Comp14
American eel	Fillet (skinless)	LPR2-ARFT-Comp04
American eel	Fillet (skinless)	LPR1-ARFT-Ind085
American eel	Carcass	LPR2-ARCT-Comp04
American eel	Carcass	LPR1-ARCT-Ind085
American eel	Whole body	LPR3-ARWB-Ind001
American eel	Whole body	LPR3-ARWB-Ind009
American eel	Whole body	LPR3-ARWB-Ind012
American eel	Whole body	LPR4-ARWB-Ind024
American eel	Whole body	LPR4-ARWB-Ind025
American eel	Whole body	LPR5-ARWB-Ind039
American eel	Whole body	LPR4-ARWB-Ind043
American eel	Whole body	LPR5-ARWB-Comp11
American eel	Whole body	LPR4-ARWB-Ind060
American eel	Whole body	LPR5-ARWB-Ind062
American eel	Whole body	LPR7-ARWB-Ind070
American eel	Whole body	LPR6-ARWB-Ind069
American eel	Whole body	LPR6-ARWB-Ind074
American eel	Whole body	LPR1-ARWB-Comp03
American eel	Whole body	LPR8-ARWB-Comp16
American eel	Whole body	LPR8-ARWB-Comp15
American eel	Whole body	LPR8-ARWB-Comp18
American eel	Whole body	LPR8-ARWB-Comp13
American eel	Whole body	LPR8-ARWB-Comp19
Rinsate Blank		LPR-071910-RB
Channel catfish	Fillet (skinless)	LPR6-IPFT-Ind003
Channel catfish	Fillet (skinless)	LPR6-IPFT-Ind004
Channel catfish	Fillet (skinless)	LPR7-IPFT-Ind005
Channel catfish	Fillet (skinless)	LPR7-IPFT-Ind006
White catfish	Fillet (skinless)	LPR6-ACFT-Ind008
White catfish	Fillet (skinless)	LPR6-ACFT-Ind009
White catfish	Fillet (skinless)	LPR6-ACFT-Ind010
White catfish	Fillet (skinless)	LPR6-ACFT-Ind013
White catfish	Fillet (skinless)	LPR7-ACFT-Ind014
Channel catfish	Carcass	LPR6-IPCT-Ind004
Channel catfish	Carcass	LPR7-IPCT-Ind005
Channel catfish	Carcass	LPR7-IPCT-Ind006

White catfish	Carcass	LPR6-ACCT-Ind010
White catfish	Carcass	LPR6-ACCT-Ind013
White catfish	Carcass	LPR7-ACCT-Ind014
White perch	Fillet (with skin)	LPR6-MAFT-Comp24
White perch	Fillet (with skin)	LPR6-MAFT-Ind122
White perch	Whole body	LPR7-MAWB-Ind123
White perch	Whole body	LPR7-MAWB-Comp25
American eel	Fillet (skinless)	LPR6-ARFT-Ind065

Lab SDG	Lab ID	Pesticides (EPA 1699 Mod)	PAHs (CARB 429 Mod.)
B036065	FK7809	X	X
B036065	FK7810	X	X
B036065	FK7811	X	X
B036065	FK7812	X	X
B036065	FK7813	X	X
B036065	FK7814	X	X
B036065	FK7815	X	X
B036065	FK7816	X	X
B036065	FK7817	X	X
B036065	FK7818	X	X
B036065	FK7819	X	X
B036065	FK7820	X	X
B036065	FK7821	X	X
B036065	FK7822	X	X
B036065	FK7823	X	X
B036065	FK7824	X	X
B036065	FK7825	X	X
B036065	FK7826	X	X
B036065	FK7827	X	X
B036065	FK7828	X	X
B036065	FK7829	X	X
B036065	FK7830	X	X
B044251	FO7636	X	X
B044251	FO7637	X	X
B044251	FO7638	X	X
B044251	FO7639	X	X
B044251	FO7640	X	X
B044251	FO7641	X	X
B044251	FO7642	X	X
B044251	FO7643	X	X
B044251	FO7644	X	X
B044251	FO7645	X	X

B044251	FO7646	x	x
B044251	FO7647	x	x
B044251	FO7648	x	x
B044251	FO7649	x	x
B044251	FO7650	x	x
B044251	FO7651	x	x
B044251	FO7652	x	x
B044251	FO7653	x	x
B044251	FO7654	x	x
B044251	FO7655	x	x

B044293	FO7800	x	x
B044293	FO7801	x	x
B044293	FO7802	x	x
B044293	FO7803	x	x
B044293	FO7804	x	x
B044293	FO7805	x	x
B044293	FO7806	x	x
B044293	FO7807	x	x
B044293	FO7808	x	x
B044293	FO7809	x	x
B044293	FO7810	x	x
B044293	FO7811	x	x
B044293	FO7812	x	x
B044293	FO7813	x	x
B044293	FO7814	x	x
B044293	FO7815	x	x
B044293	FO7816	x	x
B044293	FO7817	x	x
B044293	FO7818	x	x
B044293	FO7819	x	x
B044293	FO7820	x	x
B044293	FO7821	x	x
B044293	FO7822	x	x
B044293	FO7823	x	x

B044269	FO7728	x	x
B044269	FO7729	x	x
B044269	FO7730	x	x
B044269	FO7731	x	x

B044269	FO7732	x	x
B044269	FO7733	x	x
B044269	FO7734	x	x
B044269	FO7735	x	x
B044269	FO7736	x	x
B044269	FO7737	x	x
B044269	FO7738	x	x
B044269	FO7739	x	x
B044269	FO7740	x	x
B044269	FO7741	x	x
B044269	FO7742	x	x
B044269	FO7743	x	x
B044269	FO7744	x	x
B044269	FO7745	x	x
B044269	FO7746	x	x
B044269	FO7747	x	x
B044269	FO7748	x	x

B044239	FO7591	x	x
B044239	FO7592	x	x
B044239	FO7593	x	x
B044239	FO7594	x	x
B044239	FO7595	x	x
B044239	FO7596	x	x
B044239	FO7597	x	x
B044239	FP7177	x	x

B075209	GD7038	x	x
B075209	GD7039	x	x
B075209	GD7040	x	x
B075209	GD7041	x	x
B075209	GD7042	x	x
B075209	GD7043	x	x
B075209	GD7044	x	x
B075209	GD7045	x	x
B075209	GD7046	x	x
B075209	GD7047	x	x
B075209	GD7048	x	x
B075209	GD7049	x	x
B075209	GD7050	x	x

B075209	GD7051	x	x
B075209	GD7995	x	x
B078232	GF1385	x	x
B078232	GF1386	x	x
B078232	GF1387	x	x
B078232	GF1388	x	x
B078232	GF1389	x	x
B078232	GF1390	x	x
B078232	GF1391	x	x
B078232	GF1392	x	x
B078232	GF1393	x	x
B078232	GF1394	x	x
B078232	GF1395	x	x
B078232	GF1396	x	x
B078232	GF1397	x	x
B078232	GF1398	x	x
B078232	GF1399	x	x
B078232	GF1400	x	x
B078232	GF1401	x	x
B078232	GF1402	x	x
B078232	GF3036	x	x
B078200	GF1237	x	x
B078200	GF1238	x	x
B078200	GF1239	x	x
B078200	GF1240	x	x
B078200	GF1241	x	x
B078200	GF1242	x	x
B078200	GF1243	x	x
B078200	GF1244	x	x
B078200	GF1245	x	x
B078200	GF1246	x	x
B078200	GF1247	x	x
B078200	GF1248	x	x
B085396	GJ6764	x	x
B090084	GL1411	x	x
B090084	GL1412	x	x

B090084	GL1413	x	x
B090084	GL1414	x	x
B090084	GL1415	x	x
B090084	GL1416	x	x
B090084	GL1421	x	x
B090084	GL1422	x	x
B090084	GL1423	x	x
B090084	GL1424	x	x
B090084	GL1425	x	x
B090084	GL1426	x	x
B090084	GL1427	x	x
B090084	GL1428	x	x
B090084	GL1429	x	x
B090084	GL1430	x	x
B090084	GL1431	x	x
B090084	GL1437	x	x
B090084	GL1438	x	x
B090084	GL1439	x	x
B090084	GL1440	x	x
B090084	GL1441	x	x
B090084	GL1442	x	x
B090084	GL1443	x	x
B090084	GL1444	x	x
B090084	GL1445	x	x

B090038	GL1094	x	x
B090038	GL1095	x	x
B090038	GL1096	x	x
B090038	GL1097	x	x
B090038	GL1098	x	x
B090038	GL1099	x	x
B090038	GL1100	x	x
B090038	GL1104	x	x
B090038	GL1105	x	x
B090038	GL1106	x	x
B090038	GL1107	x	x
B090038	GL1108	x	x
B090038	GL1109	x	x
B090038	GL1110	x	x
B090038	GL1111	x	x

B090038	GL1112	x	x
B090038	GL1113	x	x
B090038	GL1114	x	x
B090038	GL1115	x	x
B090038	GL1116	x	x
B090038	GL1120	x	x
B090038	GL1121	x	x
B090038	GL1122	x	x
B090038	GL1123	x	x
B090038	GL1124	x	x
B090038	GL1125	x	x
B090038	GL1126	x	x
B090038	GL1127	x	x
B090038	GL1128	x	x

B093261	GM8823	x	x
B093261	GM8824	x	x
B093261	GM8825	x	x
B093261	GM8826	x	x
B093261	GM8827	x	x
B093261	GM8828	x	x
B093261	GM8829	x	x
B093261	GM8832	x	x
B093261	GM8833	x	x
B093261	GM8834	x	x
B093261	GM8835	x	x
B093261	GM8836	x	x
B093261	GM8837	x	x
B093261	GM8838	x	x
B093261	GM8839	x	x
B093261	GM8840	x	x
B093261	GM8841	x	x
B093261	GM9375	x	x

B093245	GM8737	x	x
B093245	GM8738	x	x
B093245	GM8739	x	x
B093245	GM8740	x	x
B093245	GM8741	x	x
B093245	GM8742	x	x

B093245	GM8743	x	x
B093245	GM8746	x	x
B093245	GM8747	x	x
B093245	GM8748	x	x
B093245	GM8749	x	x
B093245	GM8750	x	x
B093245	GM8751	x	x
B093245	GM8752	x	x
B093245	GM8753	x	x
B093245	GM8754	x	x
B093245	GM8755	x	x
B093245	GM8756	x	x

B096590	GO4143	x	x
B096590	GO4144	x	x
B096590	GO4145	x	x
B096590	GO4146	x	x
B096590	GO4147	x	x
B096590	GO4148	x	x
B096590	GO4149	x	x
B096590	GO4150	x	x
B096590	GO4151	x	x
B096590	GO4152	x	x
B096590	GO4153	x	x
B096590	GO4154	x	x
B096590	GO4155	x	x
B096590	GO4156	x	x
B096590	GO4157	x	x
B096590	GO4158	x	x
B096590	GO4159	x	x
B096590	GO4160	x	x
B096590	GO4161	x	x
B096590	GO4162	x	x
B096590	GO4164	x	x
B096590	GO4165	x	x
B096590	GO4166	x	x
B096590	GO4167	x	x
B096590	GO4168	x	x
B096590	GO4169	x	x
B096590	GO4170	x	x

B096590	GO4171	x	x
B096590	GO4172	x	x
B096590	GO4173	x	x
B096590	GO4174	x	x

B096602	GO4241	x	x
B096602	GO4242	x	x
B096602	GO4243	x	x
B096602	GO4244	x	x
B096602	GO4245	x	x
B096602	GO4246	x	x
B096602	GO4247	x	x
B096602	GO4248	x	x
B096602	GO4249	x	x
B096602	GO4250	x	x
B096602	GO4251	x	x
B096602	GO4252	x	x
B096602	GO4253	x	x
B096602	GO4254	x	x
B096602	GO4255	x	x
B096602	GO4256	x	x
B096602	GO4257	x	x
B096602	GO4258	x	x
B096602	GO4259	x	x
B096602	GO4260	x	x
B096602	GO4261	x	x
B096602	GO6236	x	x

B0F1671	GL1417	x	x
B0F1671	GL1418	x	x
B0F1671	GL1419	x	x
B0F1671	GL1420	x	x
B0F1671	GL1432	x	x
B0F1671	GL1433	x	x
B0F1671	GL1434	x	x
B0F1671	GL1435	x	x
B0F1671	GL1436	x	x
B0F1671	GL1101	x	x
B0F1671	GL1102	x	x
B0F1671	GL1103	x	x

B0F1671	GL1117	x	x
B0F1671	GL1118	x	x
B0F1671	GL1119	x	x
B0F1717	GM8830	x	x
B0F1717	GM8831	x	x
B0F1717	GM8744	x	x
B0F1717	GM8745	x	x
B0F1597	GO4163	x	x

APPENDIX E. DATA MANAGEMENT

1 Introduction

General data rules for the tissue and sediment chemistry data collected in 2009 and 2010 have been established in the *Fish/Decapod Crustacean Tissue and Benthic Sediment Data Management Plan* (ddms [in prep]), and risk assessment-specific data rules are presented in the *Data Usability and Data Evaluation Plan for the Lower Passaic River Study Area Risk Assessments* (Windward and AECOM [in prep]).

Limited data reduction was done on the data presented in this data report. Reduction of the data presented in this report included the following:

- u Totals were calculated for various parameters.
- u A single result was selected in cases where multiple analytical methods were conducted.

The calculation of sums and the selection of single results is consistent with the rules presented in the *Fish/Decapod Crustacean Tissue and Benthic Sediment Data Management Plan* (ddms [in prep]).

2 Calculated Totals

Calculated totals based on varying treatments of non-detected concentrations are presented in this data report. Non-detected values were treated in the following ways for calculating totals:

- u Non-detected values were represented as zero.¹
- u Non-detected values were represented as one-half the reporting limit (RL).
- u Non-detected values were represented as the full RL.

Calculated totals based on each of these rules are presented in the data report summary tables in the main document. Totals with non-detected values of zero (detected-only values) are presented in maps and graphs. The methods for calculating the totals that will be used in the risk assessments are presented in the *Revised Data Usability and Data Evaluation Plan for the Lower Passaic River Study Area Risk Assessments* (Windward and AECOM [in prep]). Table 1 presents the constituents that comprise the chemical sums reported in this data report. The constituents included in chemical sums are consistent with the summations described in the *Fish/Decapod Crustacean Tissue and Benthic Sediment Data Management Plan* (ddms [in prep]).

¹ If all components of a sum were non-detected, the calculated total concentration was represented by the highest RL.

Table 1. Constituents for LPRSA data chemical sums

Chemical Sums ^a	Constituent Parameters
PCBs	
Total PCB congeners	209 PCB congeners ^b
Total PCB Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Aroclor 1254, Aroclor 1260, Aroclor 1262, and Aroclor 1268
PAHs	
Total HPAHs	benzo(a)anthracene, benzo(a)pyrene, benzo(b/j)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, and pyrene
Total LPAHs	acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene
Total PAHs	acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b/j)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene
Pesticides	
Total chlordanes	alpha-chlordane, gamma-chlordane, oxychlordane, cis-nonachlor, and trans-nonachlor
Total endosulfan	endosulfan I, endosulfan II, and endosulfan sulfate
Total 4,4'-DDT	4,4'-DDD; 4,4'-DDE; 4,4'-DDT
Total 2,4'- and 4,4'-DDD	2,4'-DDD; 4,4'-DDD
Total 2,4'- and 4,4'-DDE	2,4'-DDE; 4,4'-DDE
Total 2,4'- and 4,4'-DDT	2,4'-DDT; 4,4'-DDT
Total DDx	2,4'-DDD; 2,4'-DDE; 2,4'-DDT; 4,4'-DDD; 4,4'-DDE; 4,4'-DDT

^a Partial sums were calculated in instances when a constituent parameter was missing (e.g., a compound rejected by validation). A "T(#)" data qualifier was applied to all partial sums. The "#" in the qualifier represents the number of constituent parameters that are missing from the sum value.

^b When calculating a PCB congener sum, only a single concentration associated with co-eluting congeners was included in the sum.

^c The twelve dioxin-like congeners are: PCB 77, PCB 81, PCB 105, PCB 114, PCB 118, PCB 123, PCB 126, PCB 156, PCB 157, PCB 167, PCB 169, and PCB 189.

DDD – dichlorodiphenyldichloroethane

DDE – dichlorodiphenyldichloroethylene

DDT – dichlorodiphenyltrichloroethane

HPAH – high-molecular-weight polycyclic aromatic hydrocarbon

LPAH – low-molecular-weight polycyclic aromatic hydrocarbon

LPRSA – Lower Passaic River Study Area

PAH – polycyclic aromatic hydrocarbon

PCB – polychlorinated biphenyl

RL – reporting limit

SEM – simultaneously extracted metals

total DDx – sum of all six DDT isomers (2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT and 4,4'-DDT)

2 Reduction of Multiple Analytical Results for a Single Sample

Multiple validated results for a given sample were reported for several analytes. When multiple results were reported for a single parameter, the most appropriate result is reported in this data report, consistent with the best result selection rules for the

Lower Passaic River Study Area 2009 and 2010 data as described in the *Fish/Decapod Crustacean Tissue and Benthic Sediment Data Management Plan* (ddms [in prep]):

- u Analyte overlap occurred between the semivolatile organic compounds (SVOCs) and PAHs, and the results of the high-resolution gas chromatography (HRGC)/high-resolution mass spectrometry (HRMS) method used for PAHs was given precedence over the SVOC results. Specifically, the PAH HRGC/HRMS method results were reported for acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b/j)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, and pyrene.
- u Analyte overlap occurred between the SVOCs and organochlorine pesticides (i.e., hexachlorobenzene). The HRGC/HRMS organochlorine results were given precedence over the SVOC results.
- u In cases where two results were reported by the same laboratory for a given sample, the data validator selected the best result and documented that selection in the data validation reports.

3 Significant Figures and Rounding

For the purpose of providing data summaries, the reported (or assessed) precision of each result was explicitly stored in the database by recording the number of significant figures. The tracking of significant figures is important when calculating averages and performing other data summaries. Significant figures were first applied following the validation criteria outlined in Attachment 1, and then as the last step of the calculation of sums and averages.² The number of significant figures reported reflects the least precise value in the calculation (i.e., the lowest number of significant figures).

² Trillium, Inc. conducted a portion the data validation, as detailed in Section 5 of this report. Significant figures were adjusted by Trillium, Inc. during the validation as described in Attachment 1. Similarly, significant figures were adjusted for all fish/crab data for consistency.

5 References

- ddms. [in prep]. Fish/decapod crustacean tissue and benthic sediment data management plan, Lower Passaic River Restoration Project. Prepared by de maximis Data Management Solutions, Inc., for the Cooperating Parties Group. de maximis Data Management Solutions, Inc., St. Paul, MN.
- Windward, AECOM. [in prep]. Lower Passaic River Restoration Project. Revised data usability and data evaluation plan for the Lower Passaic River Study Area risk assessments. Draft. Prepared for Cooperating Parties Group, Newark, NJ. Submitted to USEPA April 13, 2012. Windward Environmental LLC, Seattle, WA; AECOM, Inc., Westford, MA.

ATTACHMENT 1



MEMORANDUM

Date: October 8, 2010; Revised December 20, 2010

To: Jennifer Parker, Windward

From: Dee Shepperd, Trillium, Inc.

Re: Rationale for adjusting significant figures in analytical results

Trillium performs independent third-party validation of analytical data with two objectives: (1) assessing the usability of the results for the purpose intended and (2) determining whether or not the data and documentation provided are adequate to support the results in a court of law. The products of the validation, in the form of text reports, data summary forms, and annotated Form 1s (laboratory report forms), serve to inform the data user about the reliability of the reported concentrations, as well as the validator's best judgement concerning any gaps or weaknesses in the documentation to support them.

The usability of the results involves an evaluation of the accuracy and precision of the reported concentrations. This includes an assessment of the handling of the samples from collection through analysis, the laboratory's performance of the analytical method, and evaluation of the variance in the sample matrix itself. Determining how well the reported results can stand up to scrutiny in a legal proceeding requires evaluation of all of the supporting data and documentation to ensure that each reported result can be traced all the way back to the collection of the sample.

The United States Supreme Court in *Daubert*¹ listed four "non-exclusive" factors that courts should consider in evaluating the validity of the basis for expert opinions. Analytical data are also subject to these same criteria, which are:

1. Can the data be replicated?
2. Is there a known error rate or variability?
3. Have the data been subjected to peer review?
4. Are the data generally accepted?

¹ *Daubert v. Merrell Dow Pharmaceuticals, Inc. (1993) 509 U.S. 579, 589*

Data validation is peer review. The data are generally accepted if the laboratory has shown that the method has been correctly performed. The data must include replicate analyses and there is a known accuracy and precision presented with the data in the number of significant figures used for data reporting.

All analytical methods will give differing results for a sample. The known or potential error term is a statistical measure of how different these results are likely to be. In analytical chemistry, the method is the entire analytical procedure used to identify and measure the concentration of analytes in a sample matrix. The error term, or “measurement uncertainty,” is reflected in the number of significant figures used to report the results. It is critical to present sample concentrations using only the significant figures that are appropriate to the data set. The error term implied by the significant figures must be supported by the available data and documentation and must be demonstrated to be repeatable for the results in the data set.

No analytical result can be more accurate than the factors used to determine it. In other words if a balance, accurate to $0.1 \text{ g} \pm 0.1 \text{ g}$, is used to weigh a sample, a result of 0.11 g cannot be defended because that result implies greater accuracy and precision than can be achieved with the measurement system. Likewise, a calibration curve produced by analyzing standards concentrations of 5.0, 10, 50, 100, and 200 pg/mL cannot produce a defensible calculated result of 5.01 pg/mL .

The last significant figure in an analytical measurement is the only figure that should express variance. For instance, a result of 1.6 reflects two significant figures and an error term of ± 0.1 , meaning that the result could be 1.5, 1.6, or 1.7. The error term is expressed as 62 parts per thousand or 6.2%. If the result is reported with three significant figures, as 1.62, a smaller error term is expressed (6.2 parts per thousand or 0.62%), meaning that the result could be 1.61, 1.62, or 1.63, but not 1.5 or 1.7. Supporting this level of accuracy and precision at this concentration range would require that the laboratory can routinely and demonstrably analyze two portions of the project-specific sample with duplicate agreement of less than 1 relative percent difference (RPD).

The error term for any data set will include variability for all steps involved in the sample collection and handling, preparation, calibration, analysis, and calculation of final results. The use of various QA/QC procedures are intended to allow the sampler, the laboratory, the validator, and data user to assess the variance inherent in that result. The aim of the laboratory is to provide the most accurate and precise results possible for each sample and parameter, using the required methods. The laboratory does this by limiting variability due to analytical techniques.

When validating data, Trillium routinely reduces the number of significant figures where necessary to protect the defensibility of the data. When a laboratory reports more significant figures than are supported by the data provided, adjustments are made to protect the data user in the event that the results are used in litigation. This process includes examining the accuracy and precision

of the measurement system used, the accuracy and precision of the calibration standards and spiking solutions, as well as the accuracy and precision of physical measurements made during sample handling, preparation, and analysis.

Each of the parameters reviewed by Trillium is discussed below. The number of significant figures reported by the laboratories, the number of significant figures to which results and RDLs and/or MDLs were adjusted by the validators, as well as the rationale for the adjustment are given in this discussion.

1. Dioxin/furan and PCB congener

Results and EDLs were reported by Analytical Perspectives with one to three significant figures. Concentrations of the standards used to establish calibration were presented with one or two significant figures, therefore, it is appropriate to report the results to one or two significant figures.

The lowest concentration used in quantitation of results was documented as 0.25 pg/ul for DD/DF and 0.5 pg/ul for PCB congeners. These documented values represent error terms of 4.0 % and 20 %, respectively, and imply that the concentrations measured could actually be 0.26 pg/ul to 0.27 pg/ul for DD/DF and 0.4 to 0.6 pg/ul for PCB congeners. The spiked blank analyzed to demonstrate instrument sensitivity for PCB congeners is documented to have been spiked at a concentration of 0.25 pg/ul, therefore it is assumed that the lowest IC standard for PCB congeners is actually accurate as 0.50 pg/uL. It is not possible for sample results to exceed the accuracy of the IC, therefore, results and reporting limits for DD/DF and PCB congeners were adjusted to two significant figures.

2. Organochlorine Pesticides (OCPs) and PAHs by HRMS

Maxxam reported results and EDLs for OCPs and PAHs with two or three significant figures. Results were reported inconsistently, even within the same sample. For instance, in a single sample analysis with a dilution factor of 20, the pesticide analyte Oxychlordan was reported at a concentration of 0.162 ng/g, and the result for trans-Nonachlor was reported at a concentration of 3.7 ng/g. It is not possible to produce a more accurate result at a lower concentration for one analyte and a less accurate result for another at a higher concentration in the same run (both analytes having the same reporting limit). On this basis, results and EDLs were adjusted to two significant figures where necessary.

3. Semivolatile and Volatile Organic Compounds (SVOCs and VOCs)

Alpha reported SVOCs and VOCs with three significant figures. IC standards were documented with one or two significant figures. Trillium only adjusted the results to a maximum of two significant figures.

4. Alkyl PAHs

Alkyl PAHs were reported by Alpha with three significant figures. No target alkyl PAH compounds were included in the calibration established for the alkyl PAH compound analysis. Response factors from the parent compounds are assumed to be applicable to all of the alkyl-substituted PAHs associated with each parent compound. The use of assumed response factors produces estimated values. Although the use of one significant figure for estimated values is more defensible, Trillium only adjusted the results to a maximum of two significant figures.

5. Herbicides and PCBs as Aroclors

Herbicide and PCB as Aroclor results were reported by Alpha with three significant figures. For PCBs as Aroclors IC standards were documented with one or two significant figures. Herbicides IC standards were documented with as many as five significant figures. This level of accuracy implied is not possible with method 8151 and the IC standard concentrations were assumed to be accurate to one or two significant figures. Trillium adjusted the results for PCBs as Aroclors and Herbicides to a maximum of two significant figures.

6. Wet chemistry parameters (ammonia, phosphorus, sulfide, AVS, TKN, and cyanide)

Results and reporting limits for the wet chemistry parameters were reported inconsistently by CAS, with one to three significant figures. Total phosphorus and AVS samples that were run undiluted were reported by the laboratory with two significant figures while samples that were diluted by a factor of ten were reported with three significant figures, suggesting increased accuracy after dilution. That is not supportable and Trillium adjusted the results to a maximum of two significant figures where necessary.

Lower concentrations of total sulfide (i.e., 1.33 and 2.85), reported with three significant figures, suggested greater accuracy than higher concentrations (i.e., 6.9 and 9.7). This is not supportable and Trillium adjusted the results to a maximum of two significant figures where necessary.

Ammonia results were reported with two or three significant figures. Final extract volumes were documented with one significant figure and calibration standards from one to three significant figures. Therefore, results were adjusted to a maximum of two significant figures.

TKN results were reported to two and three significant figures. Final extract volumes were documented with one or two significant figures; calibration standards were documented with one to three significant figures. Trillium adjusted the results to a maximum of two significant figures.

TOC results were reported to three significant figures. Trillium adjusted TOC results to two significant figures. Calibration standards are accurately measured to one or two significant figures according to the laboratory SOP.

Cyanide results were reported by the laboratory with one or two significant figures and these were not adjusted by Trillium.

Lipids in tissue samples were reported by the laboratory to two significant figures. No adjustments were made to these results by Trillium.

7. Butyltins

Results for butyltins were reported by CAS with two significant figures and these were not adjusted by Trillium.

8. Total Mercury and Methylmercury and Inorganic Arsenic

Results were reported by Brooks Rand with one, two, or three significant figures. Calibration standards were documented with one or two significant figures. Trillium adjusted results to a maximum of two significant figures where necessary.

9. Total Metals and Simultaneously Extracted Metals (SEM)

Results for total metals were reported by the laboratory with as many as five significant figures. This practice overstates the accuracy of the method. Trillium adjusted the results to three significant figures for values greater than ten mg/kg, and to two significant figures for values less than ten mg/kg. This is consistent with the ILM05.3 and is a more realistic representation of method accuracy.

SEM results were reported with two to four significant figures. Trillium adjusted the results to three significant figures.

10. TPH (Alkanes, Purgeables, and Extractables)

TPH-Alkane results were reported inconsistently by the laboratory using one, two, and three significant figures. Positive results below the RDL, for example, where the greatest uncertainty is expected, were reported with up to three significant figures, while higher concentrations were reported with one or two. Trillium adjusted positive results to a maximum of two significant figures for the TPH-Alkanes.

Results were reported to three significant figures in the two samples with positive results for TPH-Purgeables, even though the results were below the RDL where the greatest uncertainty is expected. Trillium adjusted the positive results for TPH-Purgeables to one significant figure.

Results for TPH-Extractables were reported to two and three significant figures. The subtraction of the baseline of the instrument blanks from all samples produced increased uncertainty in the results. The reproducibility criteria in the QAPP between laboratory duplicates was high for this method (50 RPD). Trillium adjusted the positive results to a maximum of two significant figures for the TPH-Extractables.

The criteria required by the QAPPs prepared for this project stipulate acceptable reproducibility between laboratory duplicates as agreement equal to or better than 20 to 50 RPD for the various parameters. For field duplicates, the QAPP criterion for agreement is generally 50 RPD. The analytical methods used allow 10%, 15%, 25%, 30%, and even 35 % RSD for initial calibration factors or response factors across the calibration range. The most stringent recovery criteria for calibration verification standards, spikes, and reference materials stipulated in the analytical methods are 90 to 110% in the metals analyses. Other parameters provide limits that range as low as 10% and as high as 150% or more.

The laboratory's results are intended to represent the analyte concentrations present in the environmental matrices at the locations sampled. The variability in the measurement procedure and the laboratory's performance of it is one part of the error term. Sample handling contributes to the error term, and a significant source of variability in the results for this project is present in the sample matrices themselves. An examination of the agreement, or lack thereof, between laboratory duplicates and field duplicates for the many analytes measured for this project demonstrates the high error term that can be expected for sediment and tissue samples. By adjusting results to a number of significant figures supportable by the data and the documentation, the overall accuracy of the measurements is better represented.

For the analytical methods specified in the two project-specific QAPPs, it is appropriate to report the results using one or two significant figures. The only exceptions are the parameters which rely solely on weight determinations for measurement and calculation (percent grainsize and percent solids/moisture). These parameters can reliably be reported to three significant figures, depending on the accuracy of the analytical balance(s) used. And the error term for even these results is subject to the homogeneity of the matrices.

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